CFD-V15/V24

SERVICE MANUAL

Ver 1.1 1998. 08
With SUPPLEMENT 1 (9-923-320-81)
With SUPPLEMENT 2 (9-923-320-82)

US Model
Canadian Model
CFD-V15
AEP Model
UK Model
CFD-V24
E Model
CFD-V15/V24

Photo : CFD-V15

Model Name Using Similar Mechanism	CD Section	NEW
	Tape Section	CFD-V10
Optical Pick-up Type		KSM-213CDM
Tape Transport Mechanism Type		MF-V10-117

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS
POWER OUTPUT AND TOTAL HARMONIC DISTORTION
With 3.2-ohm, loads, both channels driven from 150 – 10,000 Hz ; rated 2W per channel-minimum RMS power, with no more than 10% total harmonic distortion in AC operation. (US model)

Other Specification
CD player Section
System Compact disc digital audio system
Laser diode properties
Material: GaAlAs
Wave length: 780 nm
Emission duration : Continuous
Laser output : Less than 44.6 µW
(This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)
Spindle speed
200 r/min (rpm) to 500 r/min (rpm) (CLV)
Number of channels
2
Frequency response
20 – 20,000 Hz +1 /–2 dB
Wow and flutter
Below measurable limit

Radio section
Frequency range
FM : 87.6 – 108 MHz (US, Canadian, Central & South America, E, Singapore model)
87.6 – 107 MHz (AEP, UK, Saudi Arabia, Russian model)
87.5 – 108 MHz (Italian model)
65 – 108 MHz (East European model)
AM : 530 – 1,710 kHz (US, Canadian, Central & South America model)
531 – 1,602 kHz (Singapore, E, Saudi Arabia, AEP, UK, East European, Russian model)
526.5 – 1,606.5 kHz (Italian model)
Aerials FM: Telescopic aerial
AM : Built-in ferrite bar aerial

Cassette-corder section
Recording system
4-track 2 channel stereo
Fast winding time
Approx. 120 s (sec.) with Sony cassette C-60
Frequency response
TYPE I (normal): 70 – l0,000 Hz

General
Speaker Full range: 10 cm dia., 3.2 ohms, cone type (2)
Outputs Headphones jack (stereo minijack)
For 16 – 68 ohms impedance headphones
Power output (excluding US model)
2.3 W + 2.3 W (at 3.2 ohms, 10% harmonic distortion)

– Continued on page 2 –

CD RADIO CASSETTE-CORDER

MICROFILM

SONY®

Power requirements

For CD radio cassette-corder

120V AC, 60Hz (US, Canadian, Central & South America model)

230V AC, 50Hz (AEP, UK, Italian, East European, Russian, Singapore model)

110 – 120V, 220 – 240V AC selectable 50/60Hz (E, Saudi Arabia model)

9V DC, 6 size D (R20) batteries

Power consumption

AC 20 W

Battery life

For CD radio cassette-corder :
FM recording
Sony R20P : approx. 13.5 h
Sony alkaline LR20 : approx. 20 h
Tape playback
Sony R20P : approx. 7.5 h
Sony alkaline LR20 : approx. 15 h
CD playback
Sony R20P : approx. 2.5 h
Sony alkaline LR20 : approx. 7 h

Dimensions

Approx. 425 x 160 x 246 mm (w/h/d)
(16 3/4 x 6 3/8 x 9 3/4 inches) (incl. projecting parts)

Mass Approx. 4.0 kg (8 lb. 13 oz) (incl. batteries)

Supplied accessories

AC power cord (1)

Design and specifications are subject to change without notice.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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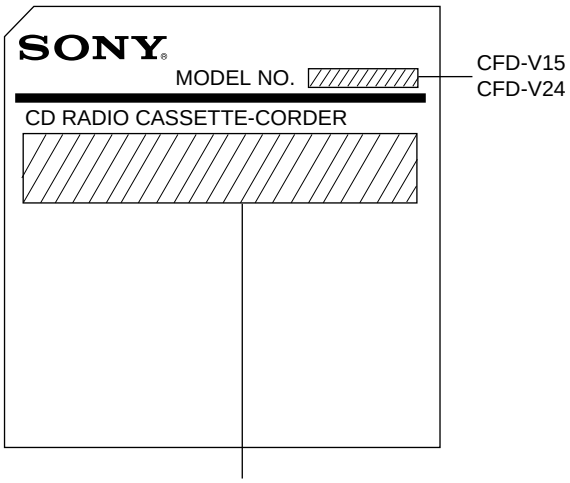
MODEL IDENTIFICATION

– Model Number Label –



US, Canadian,
Central & South America model : AC120V ∿60Hz
AEP, UK, Italian, East European, Russian,
Singapore model : AC230V ∿50Hz
E, Saudi Arabia model : AC110 – 120V , 220 – 240V selectable. ∿ 50/60Hz

SECTION 1
SERVICING NOTES

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer : Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

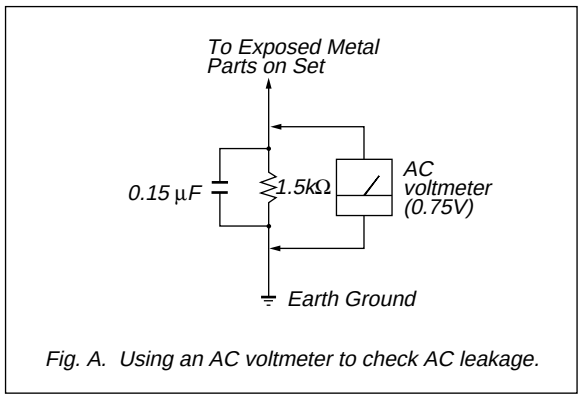


Fig. A. Using an AC voltmeter to check AC leakage.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

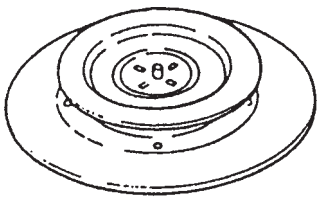
NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 30 cm away from the objective lens.

CHUCK PLATE JIG ON REPAIRING

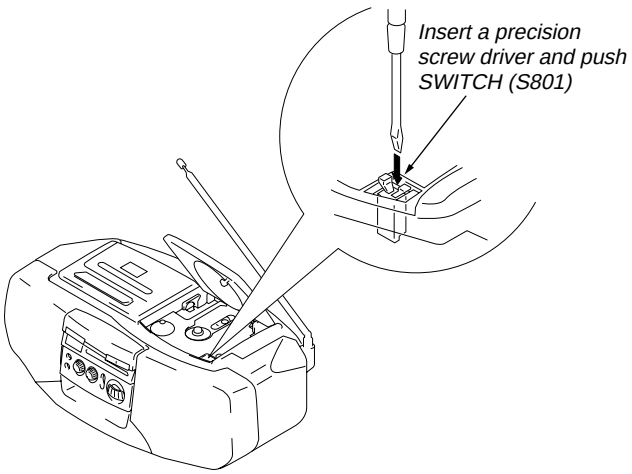
On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.

• Code number of Chuck Plate Jig : X-4918-255-1



LASER DIODE AND FOCUS SEARCH OPERATION CHECK

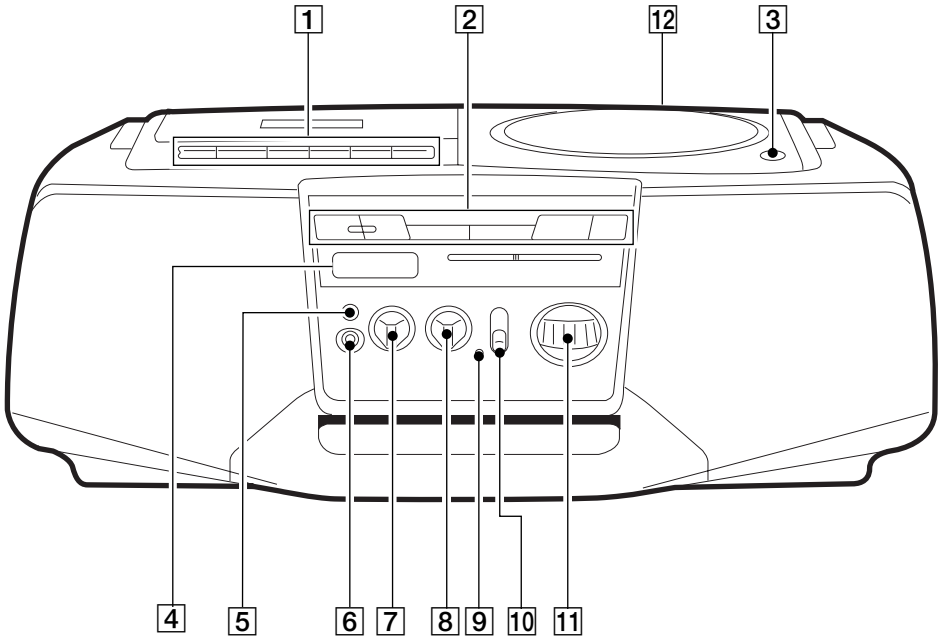
1. Press CD open knob.
2. Open the lid for CD.
3. Push on SWITCH (S801) as following figure.
4. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus search.



SECTION 2
GENERAL

LOCATION AND FUNCTION OF CONTROLS

MAIN UNIT



1 Tape operation buttons
2 CD operation buttons
⏮ button
⏭ button
PLAY MODE button
DISPLAY/ENTER button
⏯ button
■ button
3 OPEN / CLOSE button
4 Information display
5 MEGA BASS switch
6 🎧 Phones jack
7 VOL knob
8 TONE knob
9 OPR / BATT indicator
10 FUNCTION switch
11 TUNE knob
12 FM MODE switch
(AEP, UK, Italian, East European, Russian model)

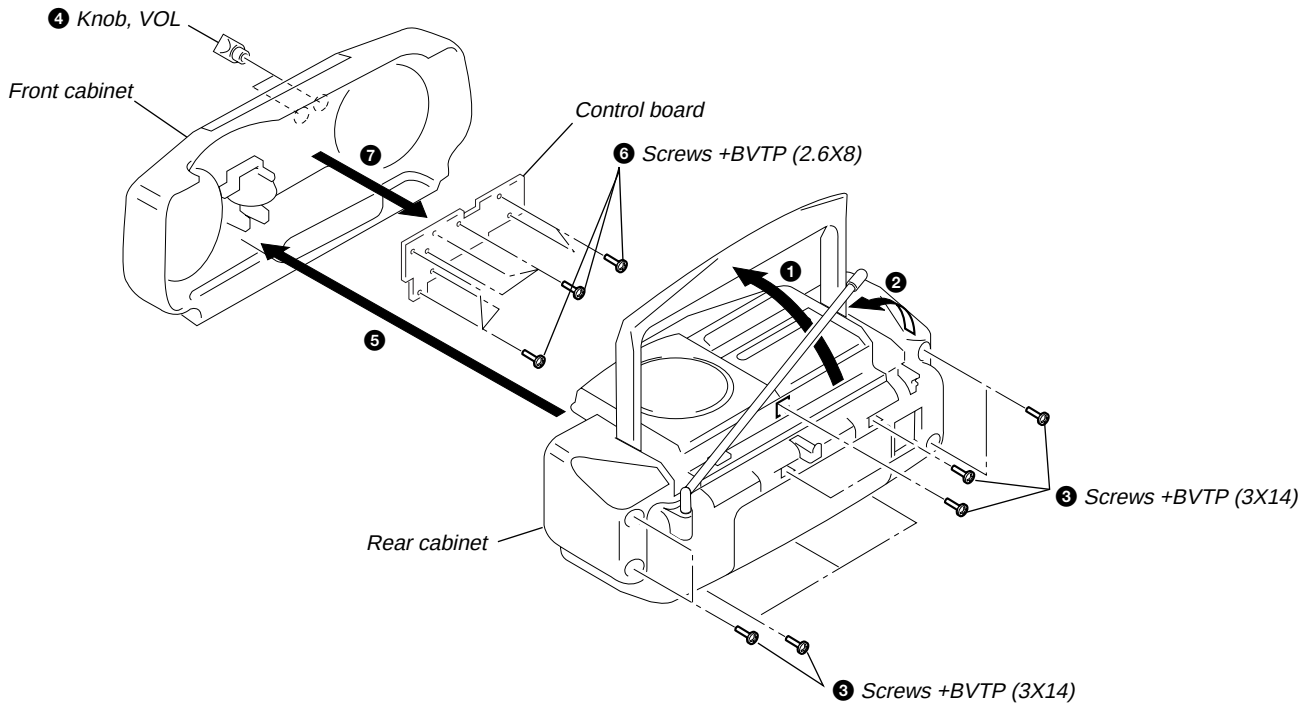
SECTION 3
DISASSEMBLY

● The equipment can be removed using the following procedure.

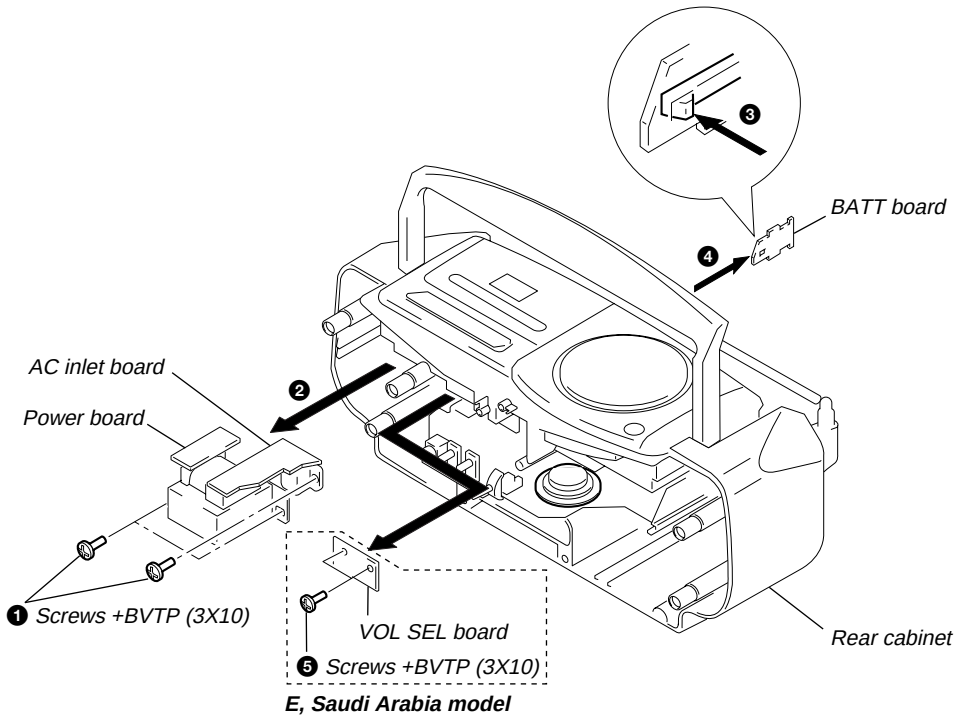
Set → Front cabinet → Control board — E, Saudi Arabia model
Rear cabinet → Power board, AC inlet board, BATT board, [VOL SEL board]
Upper cabinet → Optical pick-up section → Main board, CD motor board
Mechanism deck → REC SW board
[MONO/ST SW board]
AEP, UK, Italian, East European, Russian model

Note : Follow the disassembly procedure in the numerical order given.

3-1. FRONT CABINET, CONTROL BOARD REMOVAL

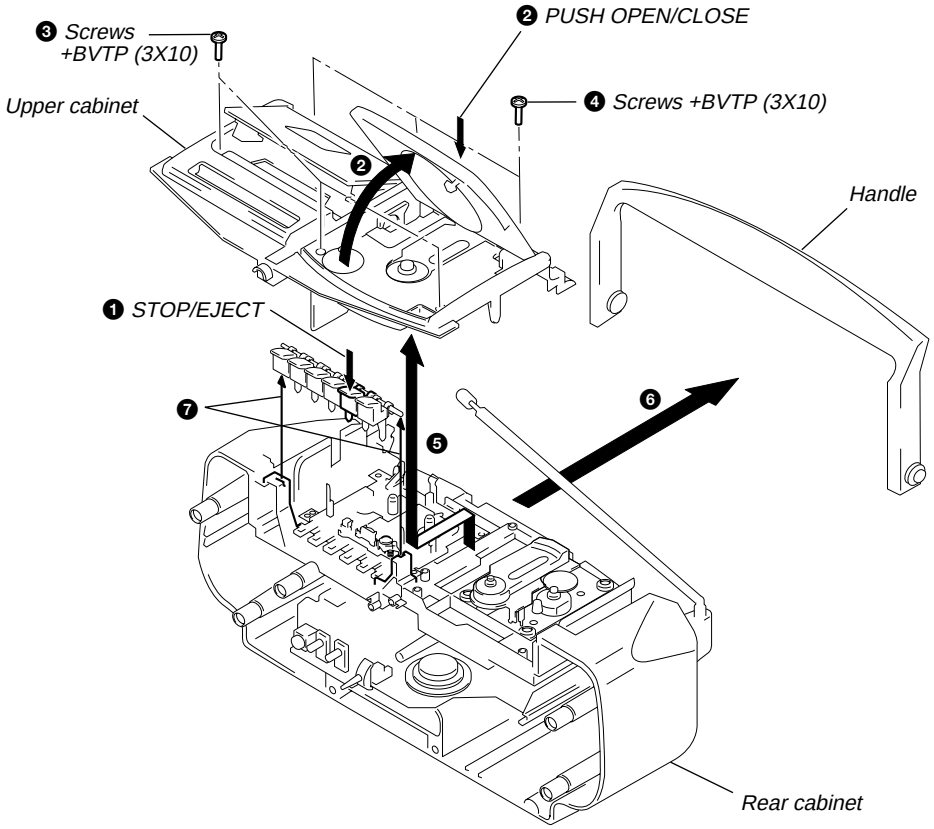


3-2. POWER BOARD, AC INLET BOARD, BATT BOARD, VOL SEL BOARD REMOVAL

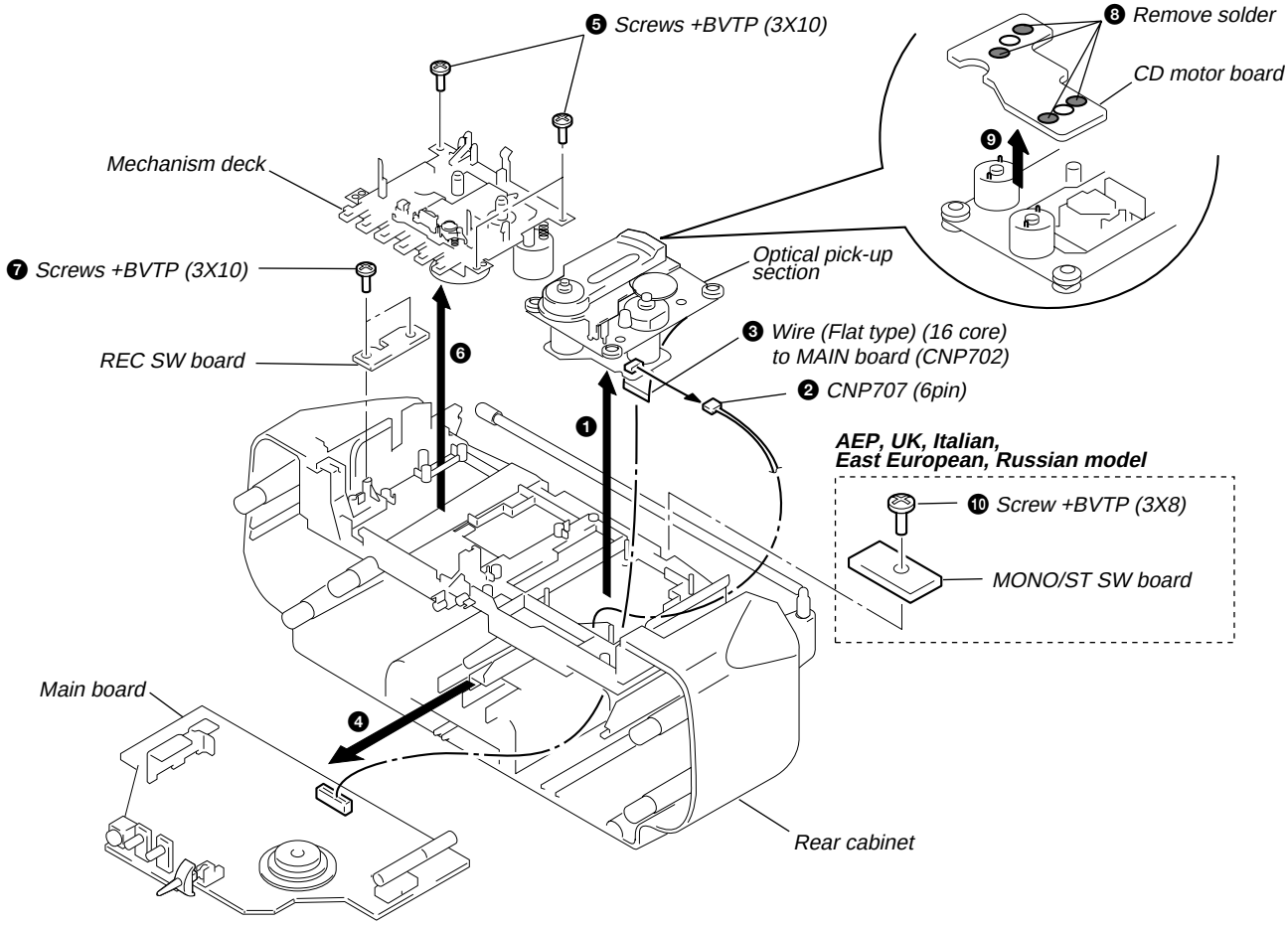


E, Saudi Arabia model

3-3. UPPER CABINET REMOVAL



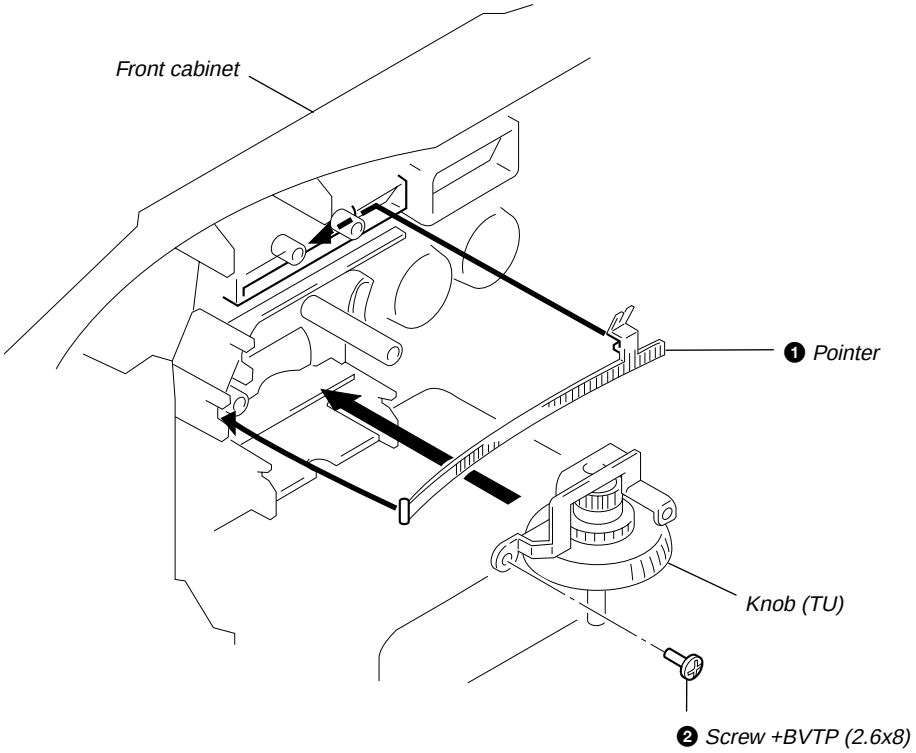
3-4. OPTICAL PICK-UP SECTION, MECHANISM DECK, MAIN BOARD, REC SW BOARD, CD MOTOR BOARD, MONO/ST SW BOARD REMOVAL



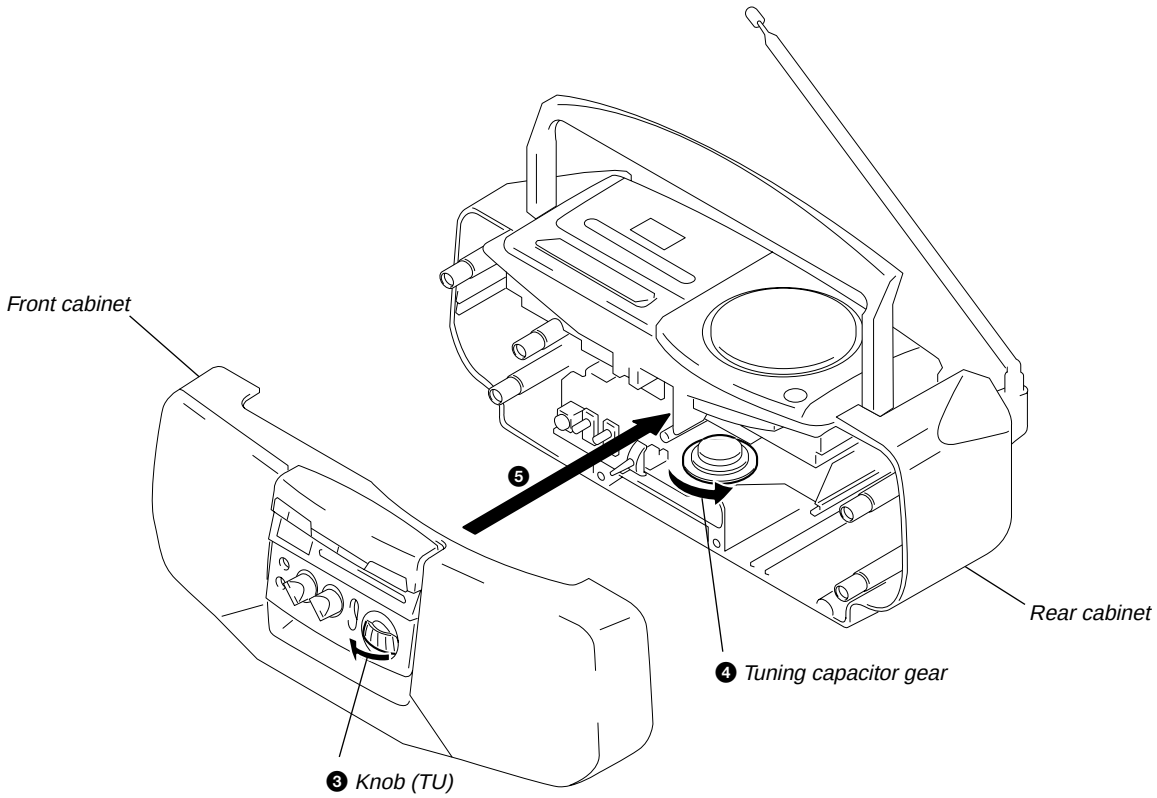
SECTION 4
DIAL POINTER INSTALLATION

Note : Follow the installation procedure in the numerical order given.

❶Align the pointer with the groove of front cabinet and insert it as shown in the illustration.
❷Align knob (TU) with front cabinet and fasten the screw.



❸Turn the knob (TU) fully in the direction of the allow as shown in the illustration.
❹Turn the tuning capacitor gear fully in the direction of the allow as shown in the illustration.
❺Fasten the front cabinet and rear cabinet with the screws.



SECTION 5
ADJUSTMENTS

5-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head, erase head, capstan, pinch roller, rubber belts
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque Meter	Meter Reading
Forward	CQ-102C	30 – 70 g•cm (0.42 – 0.97 oz•inch)
Forward Back Tension	CQ-102C	1.5 – 5.5 g•cm (0.020 – 0.076 oz•inch)
Fast Forward	CQ-201B	more than 60 g•cm (more than 0.84 oz•inch)
Rewind	CQ-201B	more than 60 g•cm (more than 0.84 oz•inch)

Tape Tension Measurement

Torque Meter	Meter Reading
CQ-403A	more than 100g (more than 3.53 oz)

5-2. ELECTRICAL ADJUSTMENTS

TAPE RECORDER SECTION

Standard Output Level

Output terminal	HP OUT
load impedance	32 Ω
output signal level	0.25V (–10dB)

Test Tape

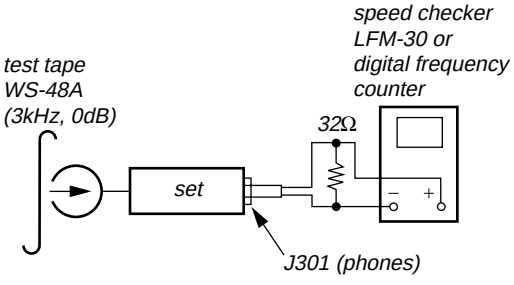
Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

0dB = 0.775V

Tape Speed Adjustment

Procedure :

Mode : Playback

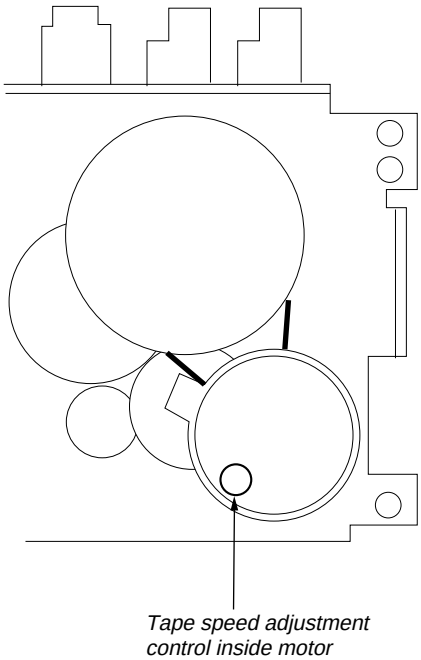


Adjustment Value :

Speed checker	Digital frequency counter
–1 to +1%	2,970 – 3,030Hz

Frequency difference between the beginning and the end of the tape should be within 1.5% (45Hz).

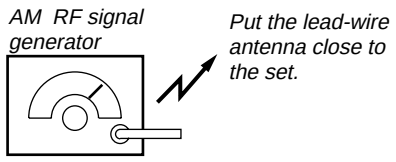
Adjustment Location :



TUNER SECTION

AM Section

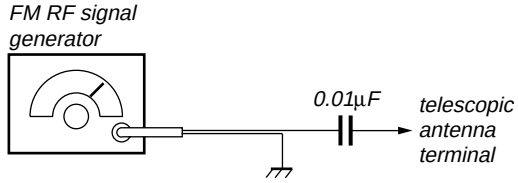
Function switch : AM
Volume : MIN



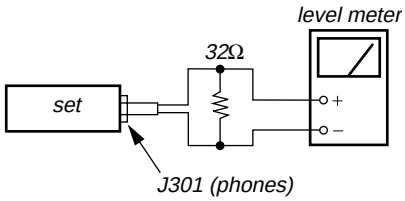
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

FM Section

Function switch : FM
Volume : MIN



22.5kHz frequency deviation by 400Hz signal.
Output level : as low as possible



• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

< >: AEP, UK, Singapore, Russian model only
<< >>: East European model only
[ ]: Italian model only
(( )) : Saudi Arabia model only

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T2	455kHz

AM FREQUENCY COVERAGE ADJUSTMENT			
Adjust for a maximum reading on level meter.			
L4	520kHz	[516kHz]	((516kHz))
CT4	1,780kHz	<1,680kHz>	<<1,680kHz>>
	[1,630kHz]	((1,630kHz))	

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	620kHz
CT3	1,400kHz

FM IF ALIGNMENT	
Adjust for a maximum reading on level meter.	
T1	10.7MHz

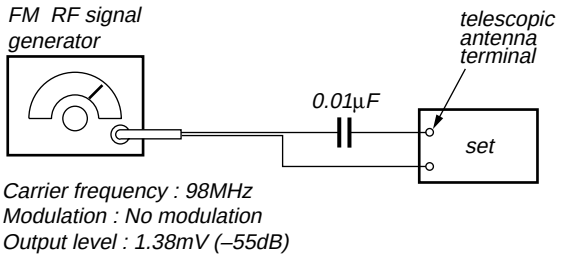
FM FREQUENCY COVERAGE ADJUSTMENT			
Adjust for a maximum reading on level meter.			
L2	86.5MHz	<87.0MHz>	<<64.0MHz>>
	[87.35MHz]	((87.35MHz))	
CT2	109.5MHz	<108.3MHz>	[108.25MHz]
	((107.8MHz))		

FM TRACKING ADJUSTMENT			
Adjust for a maximum reading on level meter.			
L1	86.5MHz	<87.0MHz>	<<68.0MHz>>
	[87.35MHz]	((87.35MHz))	
CT1	109.5MHz	<102MHz>	[108.25MHz]
	((107.8MHz))		

Adjustment Location : Main board (See page 10)

VCO Adjustment

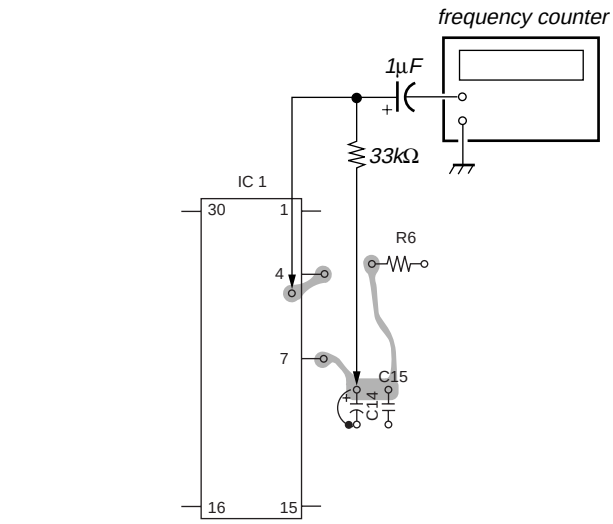
Procedure :

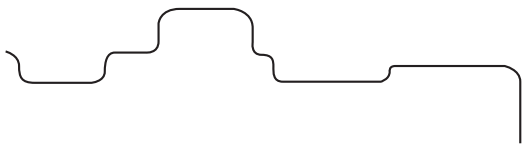


Carrier frequency : 98MHz
Modulation : No modulation
Output level : 1.38mV (–55dB)

1. Connect the frequency counter to ④ and ⑦ pin of IC 1 as shown the figure below.
2. Turn the set to 98MHz.
3. Adjust RV1 for 76kHz±500Hz reading frequency counter.

[MAIN BOARD] (Conductor side)



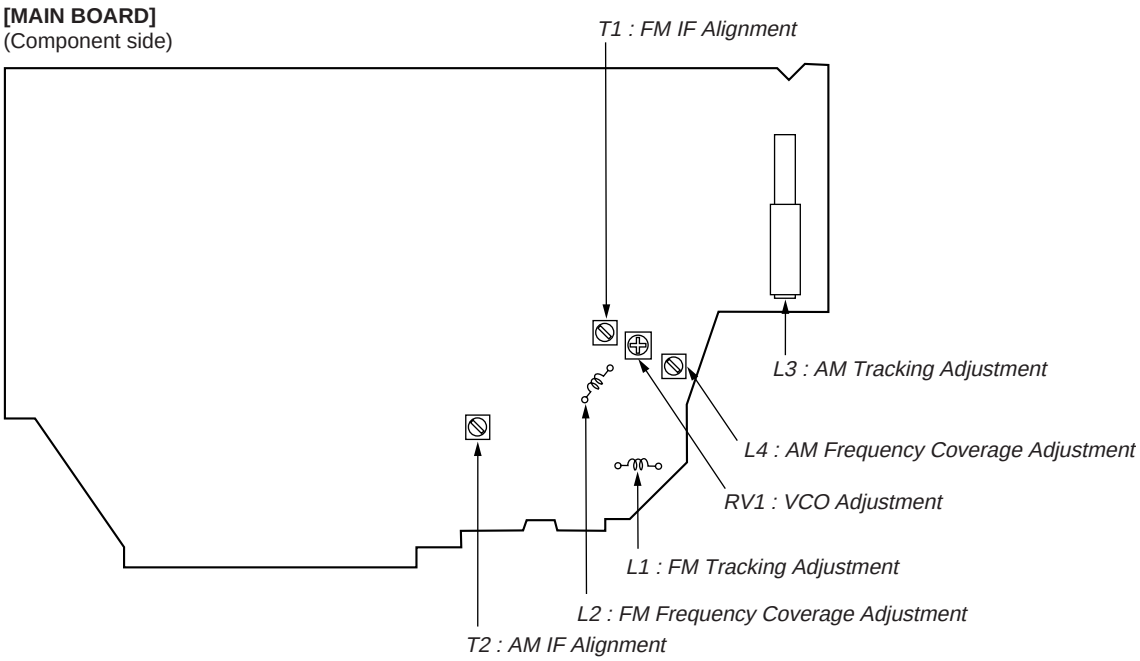


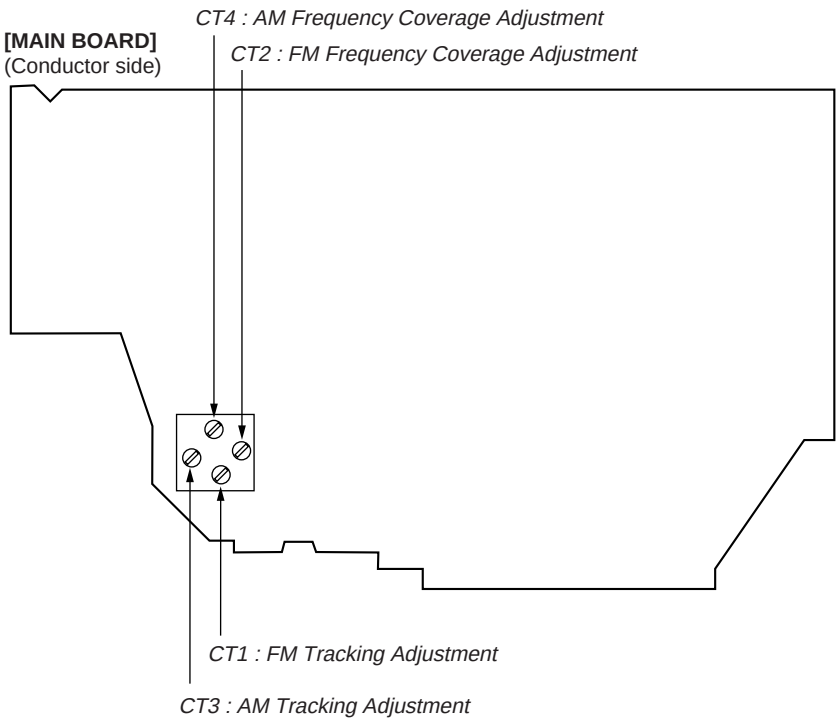
Adjustment Location : Main board (See page 10)

How to put the set into CD Test Mode

1. Set the function switch to power off.
2. Set the function switch to CD while ⏮ key and ■ key pressing.
   The set is into CD test mode (88 is displayed).
3. Turn the power off to release test mode.

Adjustment Location


[MAIN BOARD]
(Component side)
T1 : FM IF Alignment
L3 : AM Tracking Adjustment
L4 : AM Frequency Coverage Adjustment
RV1 : VCO Adjustment
L1 : FM Tracking Adjustment
L2 : FM Frequency Coverage Adjustment
T2 : AM IF Alignment


CT4 : AM Frequency Coverage Adjustment
[MAIN BOARD]
(Conductor side)
CT2 : FM Frequency Coverage Adjustment
CT1 : FM Tracking Adjustment
CT3 : AM Tracking Adjustment

SECTION 6
DIAGRAMS

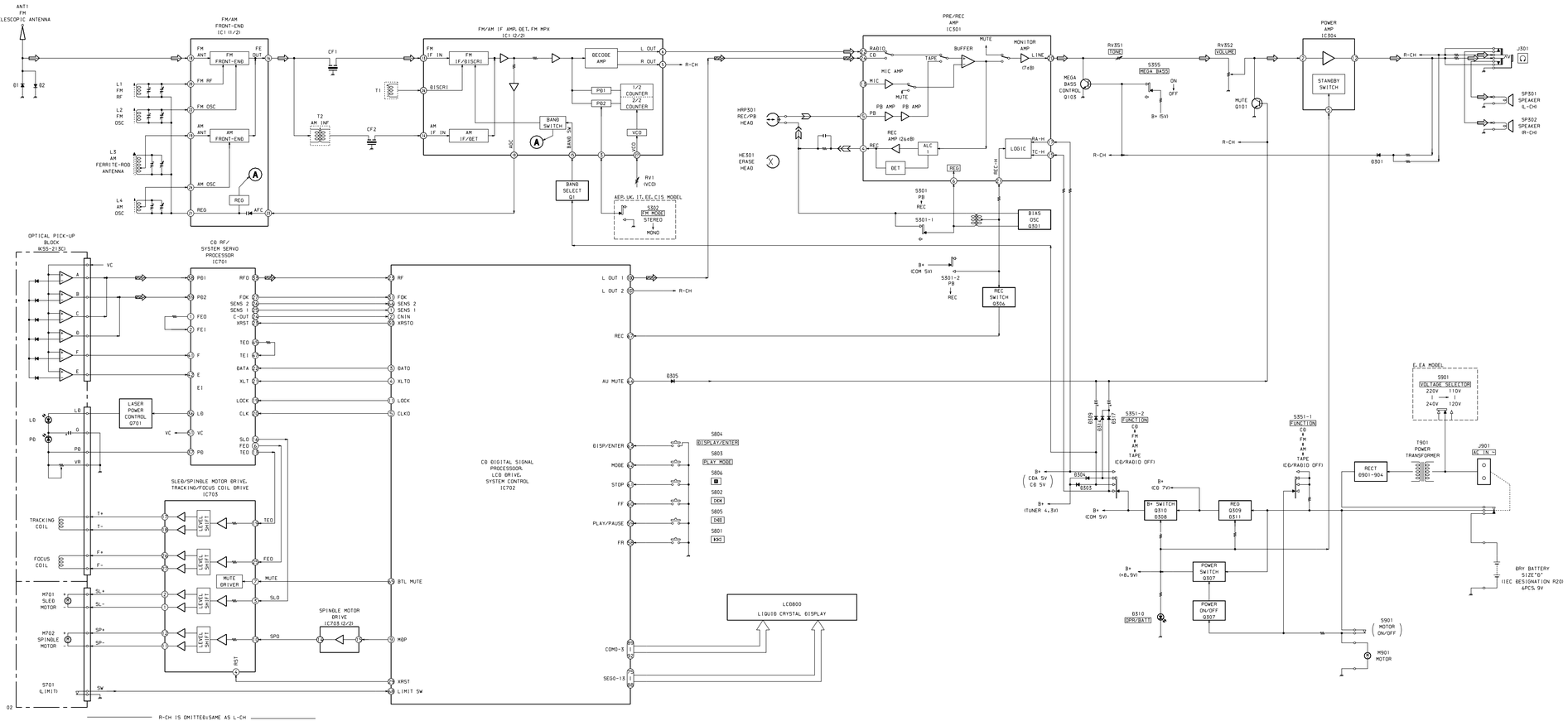
6-1. EXPLANATION OF IC TERMINALS

IC702 CD DIGITAL SIGNAL PROCESSOR, LED DRIVE, SYSTEM CONTROL (CXP401-601R)

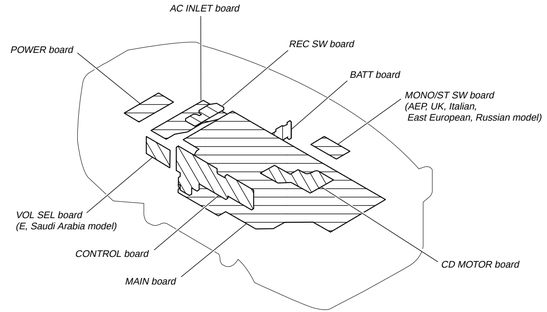
Pin No.	Pin name	I/O	Description
1	SEIN	I	CD SENS input.
2	CNIN	I	CD SENS input.
3	DATO	O	CD DSP command data output.
4	XLTO	O	Latch output.
5	CLKO	O	Clock output for CD DSP command.
6	DV_{SS}	–	Digital ground.
7	DV_{DD}	–	Digital power supply (+5V).
8	MON	–	Not used (Open).
9	MDP	O	Spindle motor drive control.
10	MDS	–	Not used (Open).
11	LOCK	O	Lock signal output.
12	VPCO2	–	Not used (Open).
13	VPCO1	–	Not used (Open).
14	VCKI	–	Not used (Connect to ⑮ pin).
15	V16M	–	Not used (Connect to ⑭ pin).
16	VCTL	–	Not used (“H” level).
17	PCO	O	Decoder PLL phase comparator output.
18	FILI	I	Decoder PLL filter input.
19	FILO	O	Decoder PLL filter output.
20	AV_{SS}	–	Analog ground.
21	CLTV	I	Decoder PLL VCO control voltage input.
22	AV_{DD}	–	Analog power supply (+5V).
23	RF	I	CD RF signal input.
24	BIAS	I	Playback EFM asymmetry current constant input.
25	ASYI	I	Playback EFM asymmerty comparater voltage input.
26	ASYO	O	Playback EFM full swing output.
27	TEST1	I	Test terminal (Fixed at “L”).
28	TEST2	I	Test terminal (Fixed at “L”).
29	XRST	I	CD reset input.
30	XRSTO	O	CD reset output. “L” : Reset
31	FOK	I	FOK signal input.
32	LRCK	O	L/R clock signal output.
33	LRCKI	I	L/R clock signal input.
34	PCMD	O	PCM data output.
35	PCMDI	I	PCM data input.
36	BCK	O	Bit clock signal output.
37	BCKI	I	Bit clock signal input.
38	GTOP	–	Not used (Open).
39	XPCK	–	Not used (Open).
40	GFS	–	Not used (Open).
41	RFCK	–	Not used (Open).
42	C2PO	–	Not used (Open).
43	DV_{SS}	–	Digital ground.
44	DV_{DD}	–	Digital power supply (+5V).
45	XROF	–	Not used (Open).

Pin No.	Pin name	I/O	Description
46	MNT3	–	Not used (Open).
47	MNT1	–	Not used (Open).
48	MNT0	–	Not used (Open).
49	C4M	–	Not used (Open).
50	DOUT	–	Not used (Open).
51	EMPHI	–	Not used (Open).
52	WFCK	–	Not used (Open).
53	SCOR	–	Not used (Open).
54	SBSO	–	Not used (Open).
55	EXCK	–	Not used (Open).
56	DTEST	I	Test terminal (Fixed at “L”).
57	CTEST	I	Test terminal (Fixed at “L”).
58	FR	I	⏮ key input.
59	PLAY/PAUSE	I	⏯ key input.
60	FF	I	⏭ key input.
61	STOP	I	■ key input.
62	MODE	I	PLAY MODE key input.
63	DISP/ENTER	I	DISPLAY/ENTER key input.
64	AU MUTE	O	Audio mute signal output.
65	BTL MUTE	O	BTL mute signal output.
66	SENCE2	I	CD SENCE input.
67	REC	I	Function REC input.
68	LIMIT SW	I	LIMIT switch input.
69	OPEN/CLOSE	I	CD door open/close switch input.
70	RMC	–	Not used (Fixed at “H”).
71	DV_{SS}	–	Digital ground.
72	DV_{DD}	–	Digital power supply (+5V).
73	SEG 15	–	Not used (Open).
74	SEG 14	–	Not used (Open).
75 – 88	SEG 1 – 13	O	LCD segment output.
89 – 92	COM 0 – 3	O	LCD common output.
93 – 95	VCL 1 – 3	I	LCD drive device voltage input.
96	$AV_{SS}1$	–	Analog ground.
97	$AV_{DD}1$	–	Analog power supply (+5V).
98	AOUT1	O	Audio output.
99	AIN1	I	Audio input.
100	LOUT1	O	L-CH audio output.
101	$AV_{SS}1$	–	Analog ground.
102	XV_{DD}	–	Oscillator power supply (+5V).
103	XTAI	I	Oscillator connect terminal (16.9344MHz).
104	XTAO	O	Oscillator connect terminal (16.9344MHz).
105	XV_{SS}	–	Oscillator ground.
106	$AV_{SS}2$	–	Analog ground.
107	LOUT2	O	R-CH audio output.
108	AIN2	I	Audio input.
109	AOUT2	O	Audio output.
110	$AV_{DD}2$	–	Digital power supply (+5V).
111	$AV_{SS}2$	–	Ground terminal.
112	NC	–	Not used (Open).

6-2. BLOCK DIAGRAM



● CIRCUIT BOARDS LOCATION

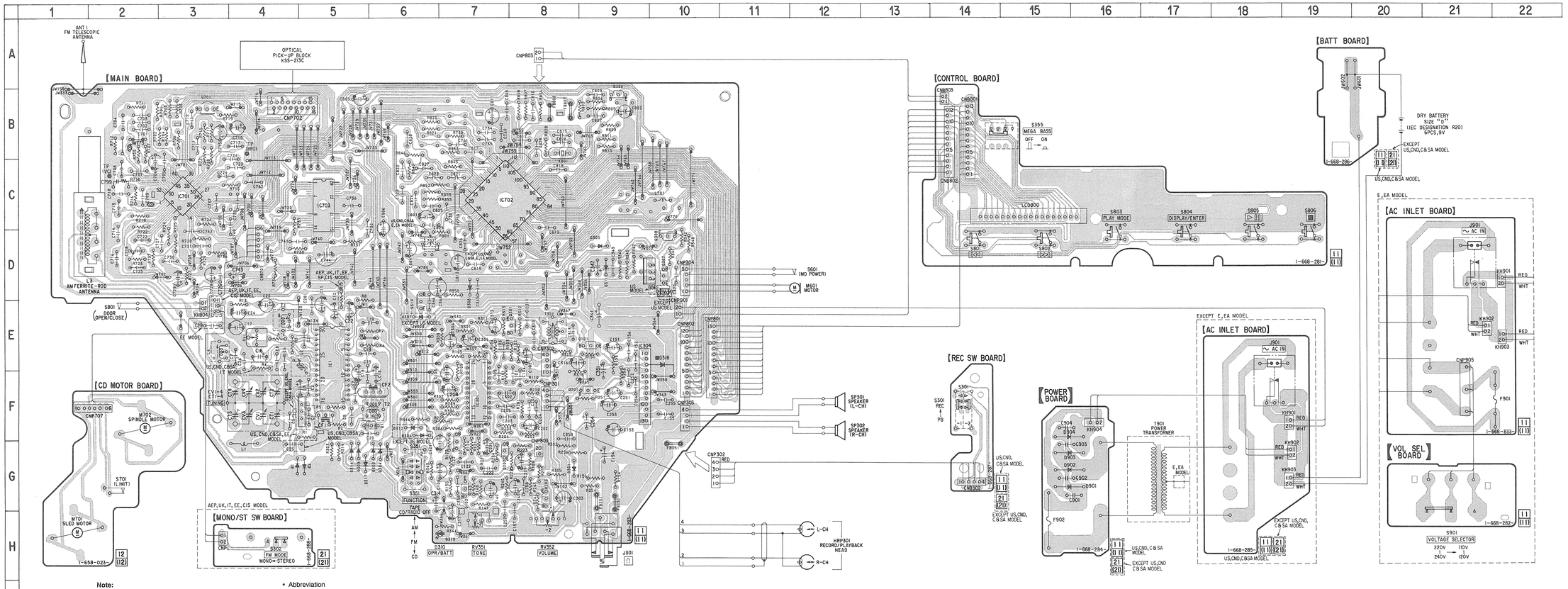


• Signal path.
⇨ : FM
⇨ : PB
⇨ : REC
⇨ : CD

6-3. PRINTED WIRING BOARDS

• SEMICONDUCTOR LOCATION

Ref. No.	Location
D1	G-4
D2	G-5
D301	G-8
D303	G-6
D304	G-6
D305	D-9
D306	F-6
D307	E-6
D308	D-7
D309	G-5
D310	H-6
D311	D-9
D312	F-6
D314	G-5
D317	G-5
D318	E-10
D901	G-15
D902	G-15
D903	G-15
D904	F-15
IC1	E-5
IC301	F-7
IC304	E-9
IC701	C-3
IC702	C-7
IC703	C-5
Q1	F-6
Q101	E-9
Q102	G-7
Q103	G-7
Q201	F-9
Q202	G-7
Q203	G-8
Q301	E-7
Q306	B-9
Q307	D-10
Q308	D-10
Q309	D-9
Q310	E-6
Q701	B-3



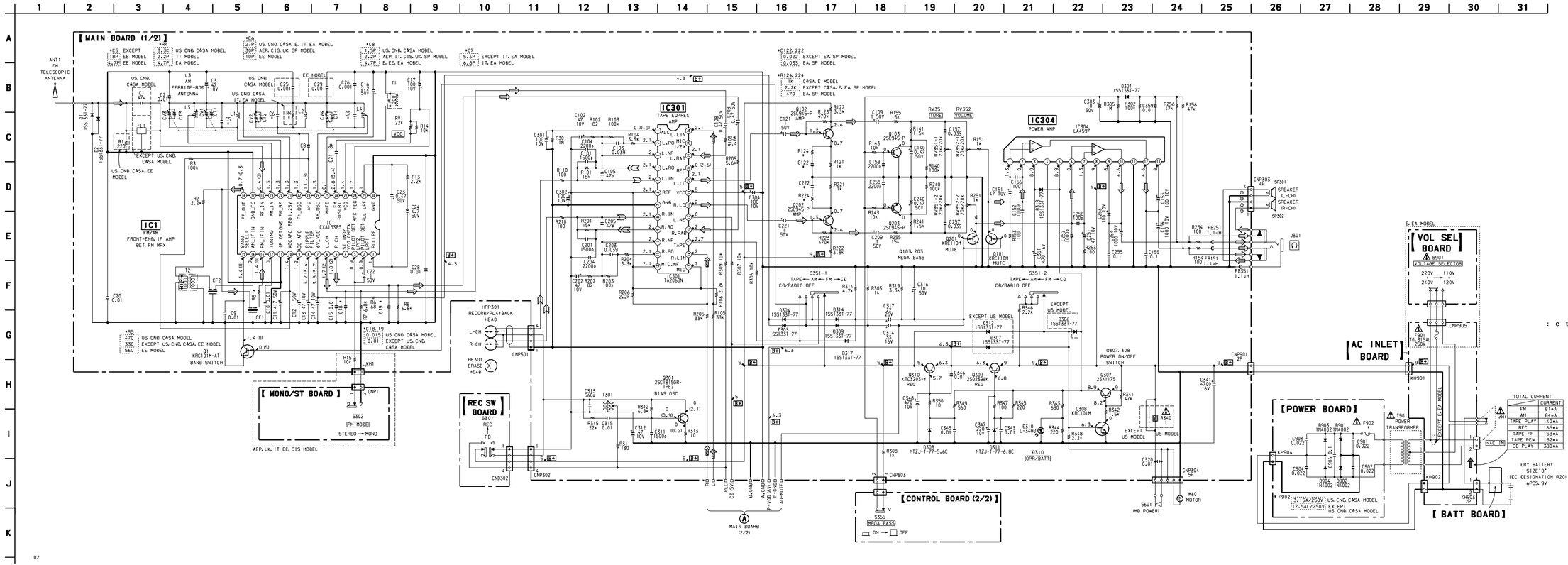
Note:
- ⟷ : parts extracted from the component side.
- ▒▒ : Pattern from the side which enables seeing.

02

- Abbreviation
  - CND : Canadian
  - EA : Saudi Arabia
  - EE : East European
  - C&SA : Central and South America
  - CIS : Russian
  - SP : Singapore
  - IT : Italian

6-4. SCHEMATIC DIAGRAM (MAIN SECTION)

● Refer to page 29 for IC Block Diagrams.


【MAIN BOARD (1/2)】
IC1
FM/AM FRONT-END, IF AMP DET, FM MPX
IC301
TAPE EQ/REC AMP
IC304
POWER AMP
【MONO/ST BOARD】
【REC SW BOARD】
【CONTROL BOARD (2/2)】
【POWER BOARD】
【AC INLET BOARD】
【BATT BOARD】
【VOL SEL BOARD】
MAIN BOARD (2/2)
ANT1 FM TELESCOPIC ANTENNA
L3 AM FERRITE-ROD ANTENNA
Q1 KRC101M-AT BAND SWITCH
HRP301 RECORD/PLAYBACK HEAD
HE501 ERASE HEAD
S501 REC PB
S502 FM MODE STEREO ⇔ MONO
S551-1 TAPE ⇔ AM ⇔ FM ⇔ CD CD/RADIO OFF
S551-2 TAPE ⇔ AM ⇔ FM ⇔ CD CD/RADIO OFF
S555 MEGA BASS ON ⇔ OFF
S601 DMD POWER
S901 VOLTAGE SELECTOR 220V 110V 240V 120V
SP301 SPEAKER (L-CH SPEAKER (R-CH
SP302
J501
T1 POWER TRANSFORMER
M401 MOTOR
DRY BATTERY SIZE"D" IEC DESIGNATION R20 6PCS. 9V
TOTAL CURRENT
FM 81mA
AM 84mA
TAPE PLAY 140mA
REC 165mA
TAPE FF 158mA
TAPE REW 152mA
CD PLAY 380mA
*C5 EXCEPT EE MODEL 1.8P EE MODEL 2.7P
*C6 5.6K US, CND, C&SA MODEL 2.2P I.T MODEL 4.7P E.A MODEL
*C6 27P US, CND, C&SA, E, I.T, E.A MODEL 39P AEP, C.I.S, U.K. SP MODEL 100P EE MODEL
*C8 1.5P US, CND, C&SA MODEL 2.2P AEP, I.T, C.I.S, U.K. SP MODEL 3.3P E, EE, E.A MODEL
*C7 5.6P EXCEPT I.T, E.A MODEL 8.2P I.T, E.A MODEL
*C122, 222 0.022 EXCEPT E.A, SP MODEL 0.033 E.A, SP MODEL
*R124, 224 1K EXCEPT C&SA, E, E.A, SP MODEL 2.2K EXCEPT C&SA, E, E.A, SP MODEL 470 E.A, SP MODEL
*C18, 19 0.015 US, CND, C&SA MODEL 0.01 EXCEPT US, CND, C&SA MODEL
*RS 470 US, CND, C&SA MODEL 330 EXCEPT US, CND, C&SA, EE MODEL 560 EE MODEL
AEP, U.K, I.T, EE, C.I.S MODEL
EXCEPT US, CND, C&SA MODEL
US, CND, C&SA MODEL
US, CND, C&SA, I.T, E.A MODEL
EE MODEL
EXCEPT US MODEL
E, EA MODEL
EXCEPT E.A MODEL
+AC IN
MAIN BOARD (2/2)
02

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- : nonflammable resistor.
- △ : internal component.

: e t o N : e t o N

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM (RADIO SECTION)
  CD STOP (CD SECTION)
  PLAY (TAPE SECTION)
  ( ) : AM (RADIO SECTION)
  REC (TAPE SECTION)
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : PB
  ⇨ : REC
  ⇨ : CD
- Abbreviation
  CND : Canadian SP : Singapore
  EA : Saudi Arabia IT : Italian
  EE : East European
  C&SA : Central and South America
  CIS : Russian

6-5. SCHEMATIC DIAGRAM (CD SECTION)

● Refer to page 30 for IC Block Diagrams.

● WAVEFORMS

① PLAY MODE
IC701 ㊸ (RFO) — VOLT/DIV : 200mV AC, TIME/DIV : 0.5µsec
1.2 ± 0.2 Vp-p

④
IC702 ㊻ (MNT3) — VOLT/DIV : 1V AC, TIME/DIV : 50µsec
4.8Vp-p, 140.5 µsec

②
IC702 ㊴ (XPCK) — VOLT/DIV : 1V AC, TIME/DIV : 0.1µsec
5Vp-p, 484nsec

⑤
IC702 ㊼ (MNT1) — VOLT/DIV : 1V AC, TIME/DIV : 50µsec
4.9Vp-p, 140.5 µsec

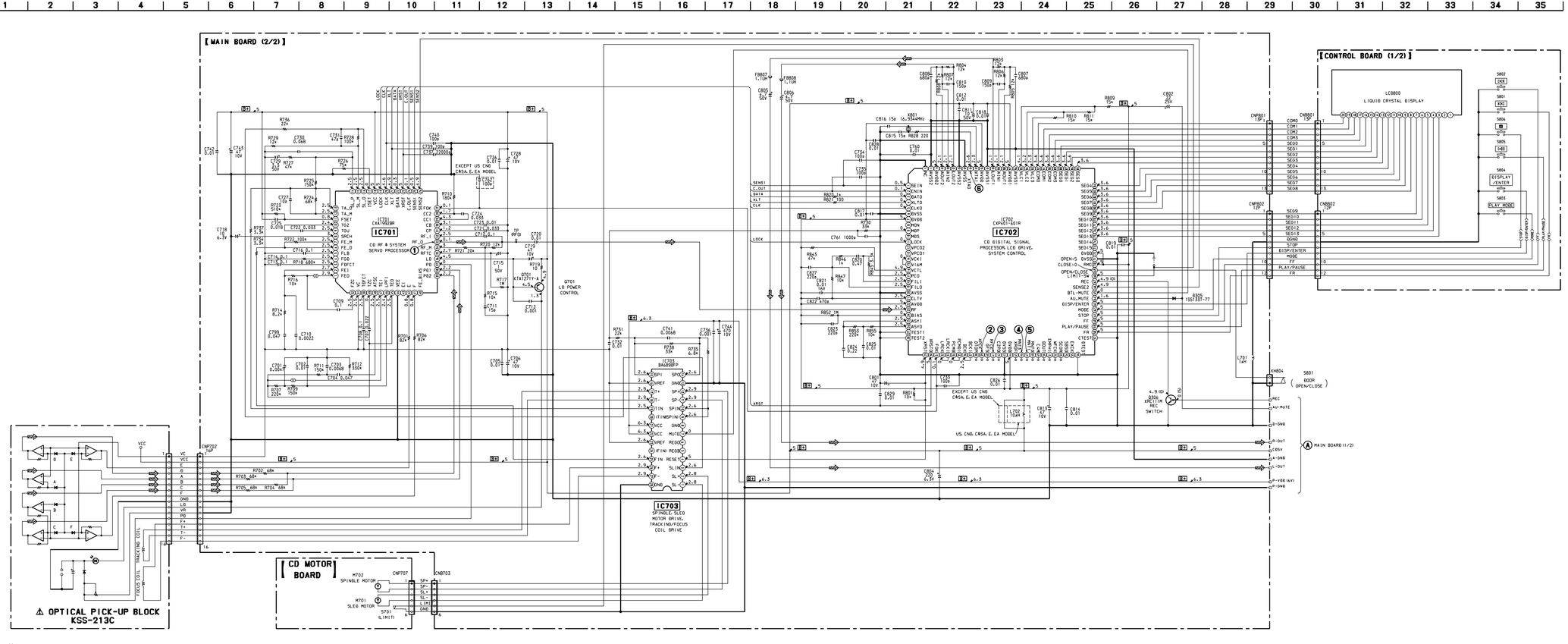
③
IC702 ㊶ (RFCK) — VOLT/DIV : 1V AC, TIME/DIV : 50nsec
5Vp-p, 237nsec

⑥
IC702 ㊽ (XTAO) — VOLT/DIV : 0.5V AC, TIME/DIV : 20nsec
2.5Vp-p, 16.9344 MHz

Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.

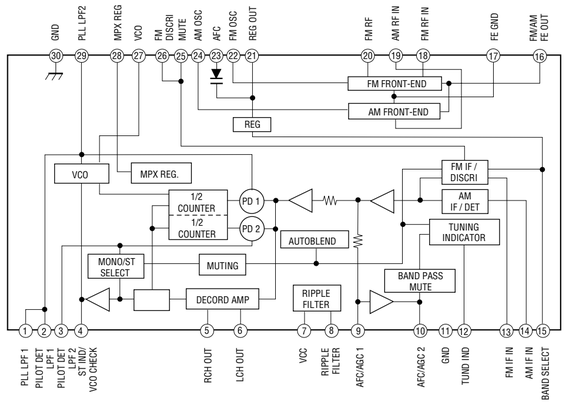
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD STOP
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
- Abbreviation
  CND : Canadian — SP : Singapore
  EA : Saudi Arabia — IT : Italian
  EE : East European
  C&SA : Central and South America
  CIS : Russian

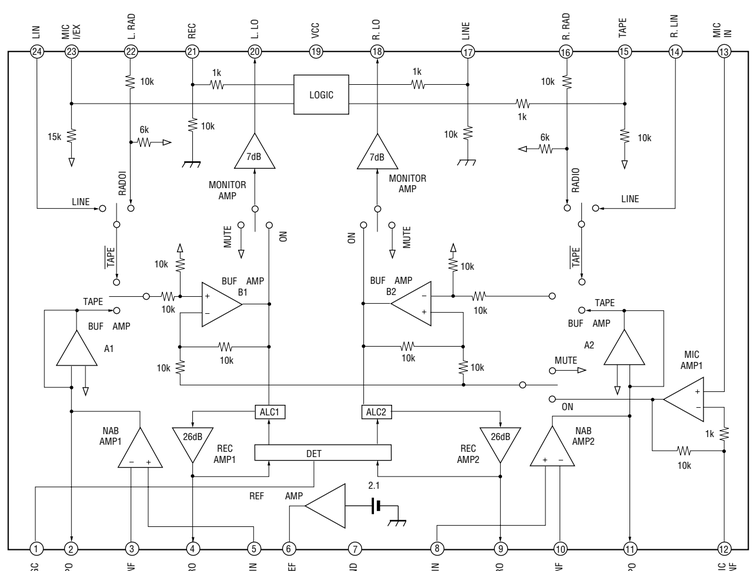


● IC BLOCK DIAGRAMS (MAIN SECTION)

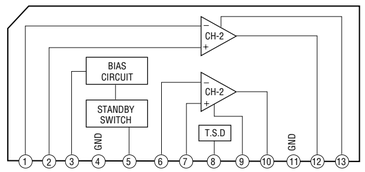
IC1 CAX1538S



IC301 TA2068N

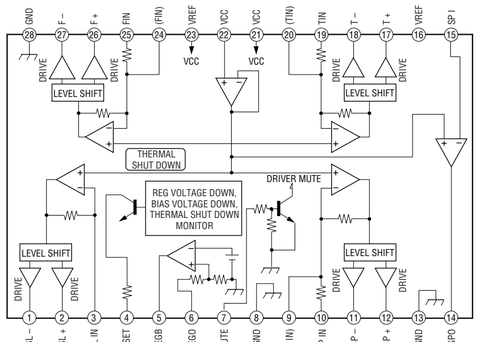


IC304 LA4597

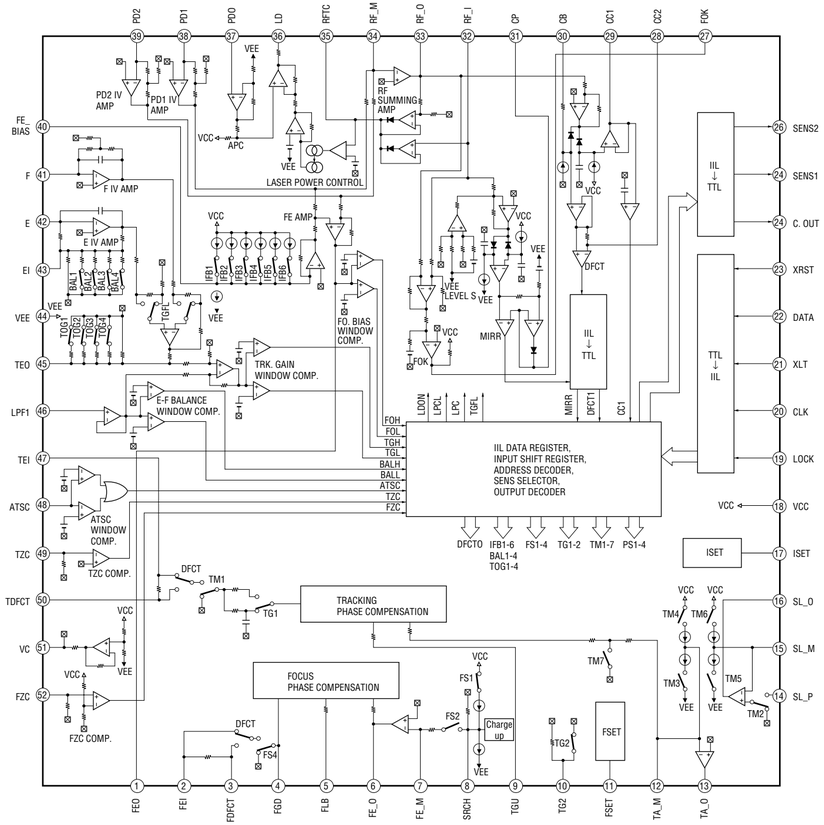


● IC BLOCK DIAGRAMS (CD SECTION)

IC703 BA6898FP



IC701 CXA1992BR



SECTION 7
EXPLODED VIEWS

NOTE :

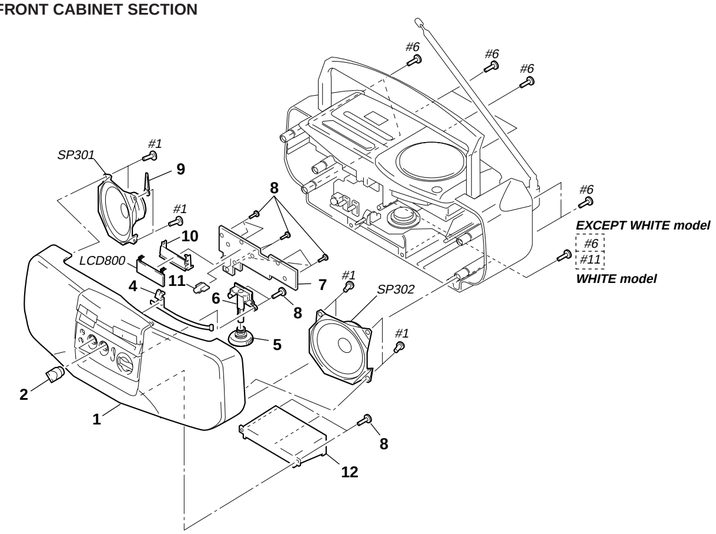
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ••• (RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation

CND	: Canadian	SP	: Singapore
EA	: Saudi Arabia	IT	: Italian
EE	: East European	CIS	: Russian
C&SA	: Central & South America		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

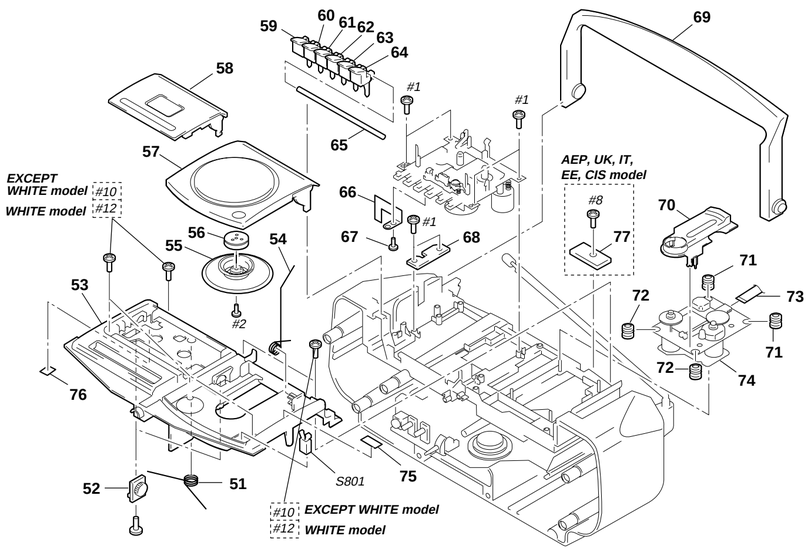
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. FRONT CABINET SECTION



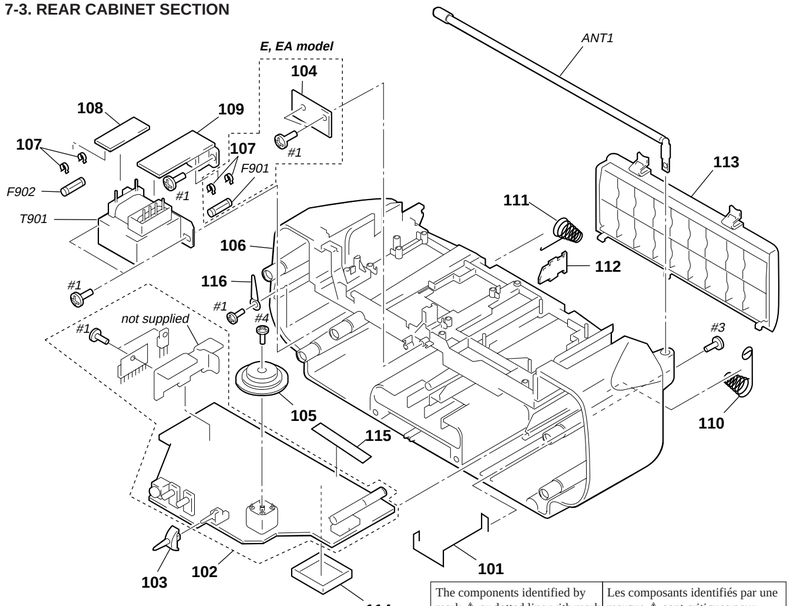
Ref. No.	Part No.	Description	Remark
1	X-3375-386-1	CABINET (FRONT) SUB ASSY (SP)	
1	X-3375-390-1	CABINET (FRONT) SUB ASSY (EA)	
1	X-3375-392-1	CABINET (FRONT) SUB ASSY (EE)	
1	X-3375-394-1	CABINET (FRONT) SUB ASSY (C&SA)	
1	X-3375-395-1	CABINET (FRONT) SUB ASSY (IT)	
1	X-3375-396-1	CABINET (FRONT) SUB ASSY (E)	
1	X-3375-397-1	CABINET (FRONT) SUB ASSY (DARK GRAY)	(US)
1	X-3375-400-1	CABINET (FRONT) SUB ASSY (AEP,UK,CIS)	
1	X-3375-903-1	CABINET (FRONT) SUB ASSY (WHITE) (US)	
1	X-4949-821-1	CABINET (FRONT) SUB ASSY (CND)	
2	3-018-837-01	KNOB (VOL) (DARK GRAY) (EXCEPT SP,EA)	
2	3-018-837-11	KNOB (VOL) (SP,EA)	
2	3-018-837-21	KNOB (VOL) (WHITE) (US)	
4	3-018-839-01	POINTER	
5	3-018-840-01	KNOB (TU) (DARK GRAY) (EXCEPT SP,EA)	
5	3-018-840-11	KNOB (TU) (SP,EA)	
5	3-018-840-21	KNOB (TU) (WHITE) (US)	
* 6	3-018-842-01	CHASSIS (TU)	
* 7	1-668-281-11	CONTROL BOARD	
8	4-951-620-01	SCREW (2.6X8), +BVTP	
9	3-703-397-01	STOPPER, WIRING	
10	3-018-845-01	HOLDER (LCD)	
11	3-018-838-01	BUTTON (MEGA BASS)	
* 12	3-022-854-01	CHASSIS (DUCT)	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	
SP301	1-505-889-11	SPEAKER (10cm) (L-CH)	
SP302	1-505-889-11	SPEAKER (10cm) (R-CH)	

7-2. UPPER CABINET SECTION



Ref. No.	Part No.	Description	Remark
51	3-009-208-01	SPRING, CASSETTE UP	
52	3-922-112-11	DAMPER	
53	3-009-186-42	CABINET (UPPER)	
53	3-009-186-61	CABINET (UPPER) (WHITE) (US)	
54	3-009-209-01	SPRING, CD UP	
55	3-019-395-01	PLATE, CHUCKING	
56	1-452-899-11	MAGNET	
57	3-009-187-42	LID, CD	
57	3-009-187-61	LID, CD (WHITE) (US)	
58	X-3375-399-1	HOLDER SUB ASSY, CASSETTE	
58	X-3375-904-1	HOLDER SUB ASSY, CASSETTE (WHITE) (US)	
59	3-009-196-31	BUTTON (REC)	
59	3-009-196-41	BUTTON (REC) (WHITE) (US)	
60	3-009-199-31	BUTTON (PLAY)	
60	3-009-199-41	BUTTON (PLAY) (WHITE) (US)	
61	3-009-198-31	BUTTON (REW)	
61	3-009-198-41	BUTTON (REW) (WHITE) (US)	
62	3-009-197-31	BUTTON (FF)	
62	3-009-197-41	BUTTON (FF) (WHITE) (US)	
63	3-009-200-31	BUTTON (STOP)	
63	3-009-200-41	BUTTON (STOP) (WHITE) (US)	
64	3-009-195-31	BUTTON (PAUSE)	
64	3-009-195-41	BUTTON (PAUSE) (WHITE) (US)	
* 65	3-009-206-01	SHAFT (MD)	
66	3-009-214-01	SPRING, REC	
67	4-951-620-01	SCREW (2.6X8), +BVTP	
* 68	1-668-287-11	REC SW BOARD (US,CND, C&SA)	
* 68	1-668-287-21	REC SW BOARD (EXCEPT US,CND, C&SA)	
69	3-009-201-31	HANDLE	
69	3-009-201-41	HANDLE (WHITE) (US)	
70	3-923-736-01	COVER, CD	
71	3-910-095-11	RUBBER, VIBRATION PROOF (RED)	
72	3-910-095-01	RUBBER, VIBRATION PROOF (GREEN)	
73	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
74	1-639-678-12	CD MOTOR BOARD	
75	3-015-646-01	CUSHION (CD)	
76	3-923-151-01	CUSHION, RUBBER	
* 77	1-668-288-21	MONO/ST SW BOARD (AEP,EE,IT,CIS,UK)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY) (DOOR OPEN/CLOSE)	

7-3. REAR CABINET SECTION

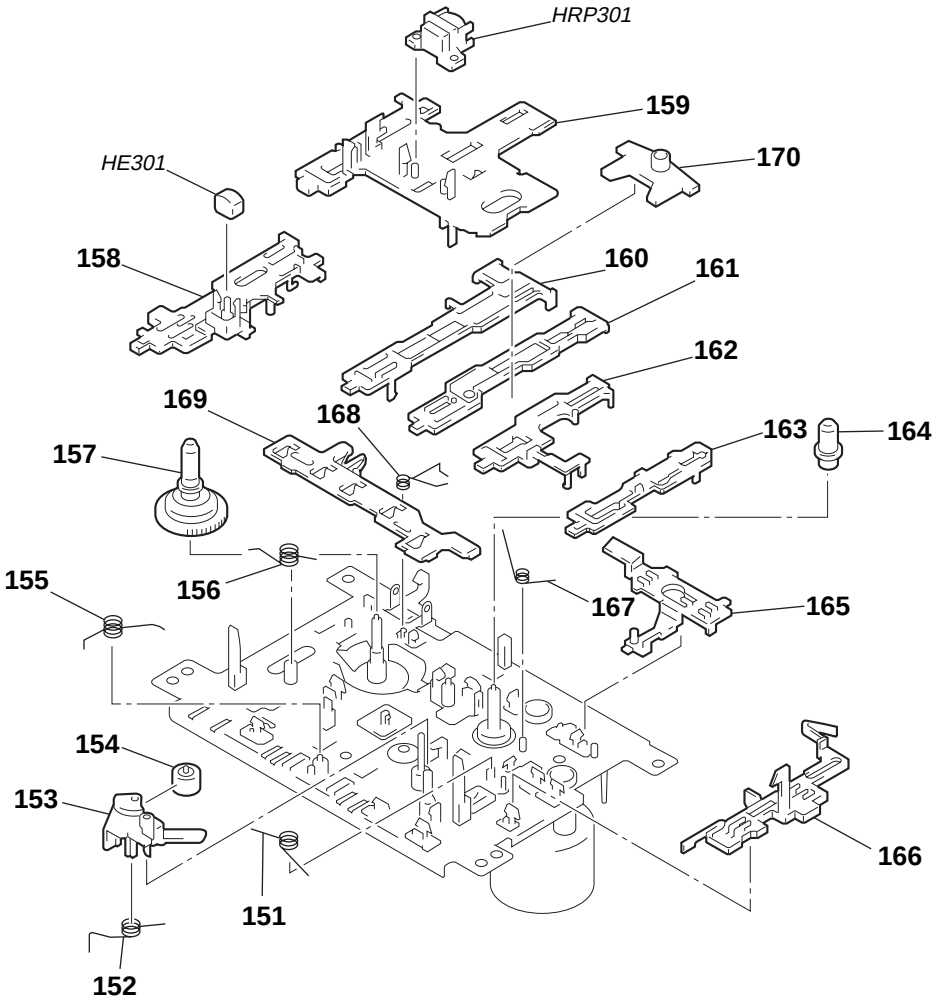


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

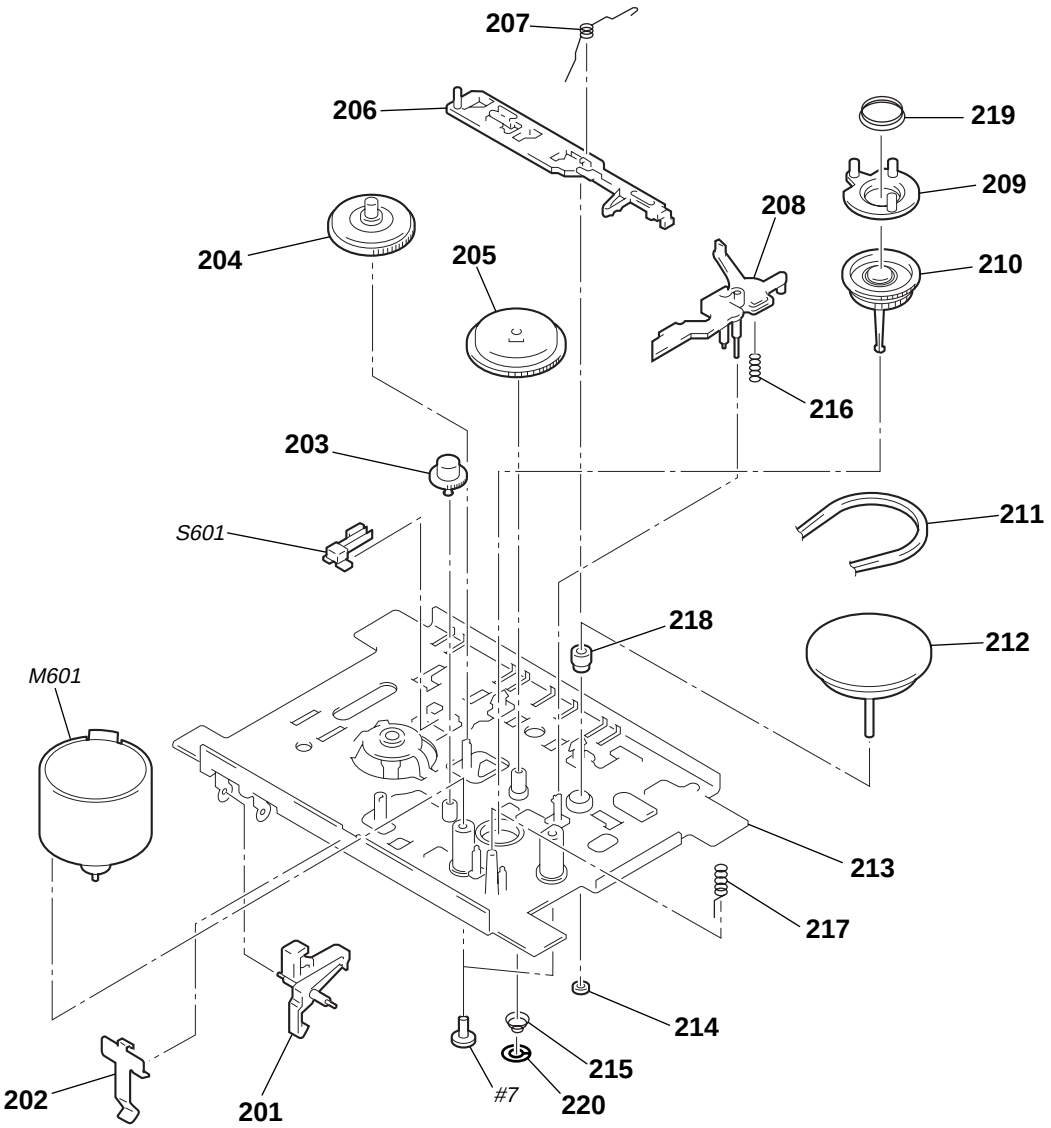
Ref. No.	Part No.	Description	Remark
* 101	3-009-215-01	TERMINAL (ANALOG), ANTENNA	
* 102	A-3321-040-A	MAIN BOARD, COMPLETE (US)	
* 102	A-3321-152-A	MAIN BOARD, COMPLETE (EA)	
* 102	A-3321-156-A	MAIN BOARD, COMPLETE (IT)	
* 102	A-3321-157-A	MAIN BOARD, COMPLETE (CND)	
* 102	A-3321-159-A	MAIN BOARD, COMPLETE (E)	
* 102	A-3321-160-A	MAIN BOARD, COMPLETE (AEP,CIS,UK)	
* 102	A-3321-172-A	MAIN BOARD, COMPLETE (EE)	
* 102	A-3321-303-A	MAIN BOARD, COMPLETE (C&SA)	
* 102	A-3321-304-A	MAIN BOARD, COMPLETE (SP)	
103	3-009-194-31	KNOB (FUN) (DARK GRAY)(EXCEPT SP,EA)	
103	3-009-194-41	KNOB (FUN) (SP,EA)	
103	3-009-194-51	KNOB (FUN) (WHITE) (US)	
* 104	1-668-282-11	VOL SEL BOARD (E,EA)	
105	3-009-192-01	GEAR, TUNING CAPACITOR	
106	X-3375-384-1	CABINET (REAR) (CND,C&SA)	
106	X-3375-387-1	CABINET (REAR) (SP)	
106	X-3375-391-1	CABINET (REAR) (EA,E)	
106	X-3375-393-1	CABINET (REAR) (EE)	
106	X-3375-398-1	CABINET (REAR) (DARK GRAY) (US)	
106	X-3375-902-1	CABINET (REAR) (WHITE) (US)	
106	X-3375-401-1	CABINET (REAR) (AEP,IT,UK,CIS)	
107	1-533-233-31	HOLDER, FUSE	
* 108	1-668-284-11	POWER BOARD (US,CND, C&SA)	
* 108	1-668-284-21	POWER BOARD (EXCEPT US,CND, C&SA)	
* 109	1-668-285-11	AC INLET BOARD (US,CND, C&SA)	
* 109	1-668-285-21	AC INLET BOARD (EXCEPT US,CND,	C&SA,E,EA)
* 109	1-668-833-11	AC INLET BOARD (E,EA)	
110	3-009-210-01	SPRING, BATTERY TERMINAL COIL	
111	3-009-211-01	SPRING, BATTERY TERMINAL COIL	
* 112	1-668-286-11	BATT BOARD(US,CND, C&SA)	
* 112	1-668-286-21	BATT BOARD(EXCEPT US,CND, C&SA)	
113	3-009-202-31	LID, BATTERY CASE(DARK GRAY)	
113	3-009-202-41	LID, BATTERY CASE (WHITE) (US)	
* 114	3-023-888-01	PLATE (CD), SHIELD	
115	3-989-888-03	CUSHION (AIR)	
116	3-703-397-01	STOPPER, WIRING	
ANT1	1-501-883-11	ANTENNA, TELESCOPIC	
⚠F901	1-532-467-31	FUSE, TIME LAG (T0.315AL/250V) (E,EA)	
⚠F902	1-532-464-31	FUSE, TIME LAG (T2.5AL/250V) (EXCEPT	US,CND,C&SA)
⚠F902	1-533-618-11	FUSE, GLASS CYLINDERICAL (3.15A/250V)	(US,CND,C&SA)
⚠T901	1-431-231-11	TRANSFORMER, POWER	(AEP,EE,IT,CIS,UK,SP,AR)
⚠T901	1-431-230-11	TRANSFORMER, POWER (US)	
⚠T901	1-431-230-21	TRANSFORMER, POWER (CND,C&SA)	
⚠T901	1-431-233-11	TRANSFORMER, POWER (E,EA)	

7-4. MECHANISM DECK SECTION (1)
(MF-V10-117)



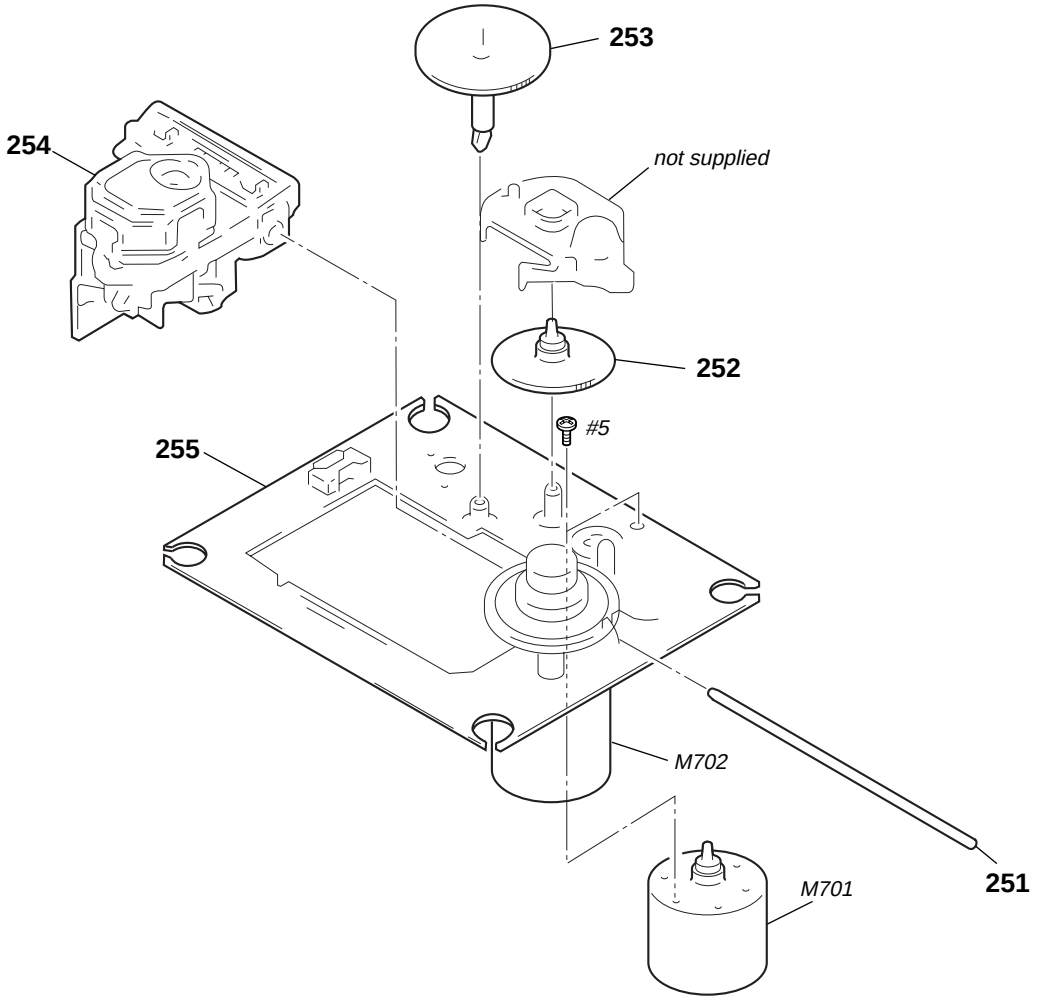
Ref. No.	Part No.	Description	Remark
151	3-933-010-01	SPRING (S/P), TORSION	
152	3-933-025-01	SPRING (P), TORSION	
153	3-933-026-01	LEVER (P)	
154	3-933-024-01	ROLLER, PINCH	
155	3-933-019-01	SPRING (F/R), TORSION	
156	3-933-028-01	SPRING (FWD), TORSION	
157	3-933-016-01	GEAR (S REEL)	
158	3-008-590-01	SLIDER (REC)	
159	3-008-592-13	BASE (H), HEAD	
* 160	3-008-588-01	SLIDER (REW)	
* 161	3-008-589-01	SLIDER (FF)	
* 162	3-008-587-01	SLIDER (STOP)	
* 163	3-008-591-01	SLIDER (PAUSE)	
164	3-933-004-01	CLAW, REEL	
* 165	3-933-021-01	SLIDER (FRP)	
* 166	3-933-006-01	SLIDER (EJECT)	
167	3-934-833-01	SPRING (FRP)	
168	3-934-834-01	SPRING (BT)	
169	3-933-007-01	PLATE, LOCK	
* 170	3-012-114-01	LEVER (FR)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-364-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	

7-5. MECHANISM DECK SECTION (2)
(MF-V10-117)



Ref. No.	Part No.	Description	Remark
201	3-933-029-01	LEVER, ERASING PREVENTION	
202	3-933-182-01	SPRING, CASSETTE	
203	3-932-995-01	GEAR (MID)	
204	X-3371-667-1	CLUTCH ASSY	
205	3-932-997-01	GEAR (CAM)	
* 206	3-932-999-01	SLIDER (SW)	
207	3-932-998-01	SPRING (GROUND), TORSION	
208	3-009-648-01	LEVER (S.OFF)	
209	3-936-438-01	LEVER (K)	
210	X-3373-572-1	REEL ASSY (N), T	
211	3-933-020-01	BELT	
212	X-3372-924-1	FLYWHEEL ASSY	
213	3-932-993-01	CHASSIS, OUTSERT	
214	3-343-358-01	RING, RETAINING	
215	3-933-005-01	SPRING (CAM), COMPRESSION	
216	3-939-383-02	SPRING, COMPRESSION	
217	3-937-760-01	SPRING (GROUND), COMPRESSION	
218	3-934-336-01	BEARING	
219	3-009-650-02	SPRING (K), COMPRESSION	
220	3-016-349-01	WASHER	
M601	A-3304-619-A	MOTOR ASSY	
S601	1-762-679-11	SWITCH, LEAF (MD POWER)	

7-6. OPTICAL PICK-UP SECTION (KSM-213CDM)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
251	2-626-908-01	SHAFT, SLED	
252	2-627-003-02	GEAR (B) (RP)	
253	2-626-907-01	GEAR (A) (S)	
⚠254	8-848-483-05	OPTICAL PICK-UP KSS-213C	
255	X-2626-202-1	CHASSIS ASSY (MB) (RP), MOTOR (INCLUDING M702) (SPINDLE)	
M701	X-2625-769-1	GEAR ASSY (MB) (RP), MOTOR (SLED)	

AC INLET | BATT | CD MOTOR | CONTROL | MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE :
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ , for example :
  uA.... : µ A.... , uPA.... : µ PA....
  uPB.... : µ PB.... , uPC.... : µ PC....
  uPD.... : µ PD....
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  CND : Canadian SP : Singapore
  EA : Saudi Arabia IT : Italian
  EE : East European CIS : Russian
  C&SA : Central & South America
  KR : Korean

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	1-668-285-11	AC INLET BOARD (US,CND,C&SA)	
*	1-668-285-21	AC INLET BOARD (EXCEPT US,CND,C&SA)	
*	1-668-833-11	AC INLET BOARD (E,EA)	
		**********	
	1-533-233-31	HOLDER, FUSE (E,EA)	
		< CONNECTOR >	
* CNP905	1-564-752-11	PIN, CONNECTOR (WITH LOCK) 3P (E,EA)	
		< FUSE >	
⚠F901	1-532-467-31	FUSE, TIME LAG (T0.315AL/250V) (E,EA)	
		< JACK >	
⚠J901	1-526-818-11	INLET, AC (~ AC IN) (C&SA)	
⚠J901	1-526-838-11	INLET, AC 2P (~ AC IN) (EXCEPT US,CND,C&SA)	
⚠J901	1-540-009-11	INLET, AC (~ AC IN) (US,CND)	
		< CABLE, HOLDER >	
* KH901	1-573-287-11	HOLDER, CABLE 2P	
* KH902	1-573-287-11	HOLDER, CABLE 2P	
* KH903	1-573-287-11	HOLDER, CABLE 2P	
**********			
*	1-668-286-11	BATT BOARD (US,CND,C&SA)	
*	1-668-286-21	BATT BOARD (EXCEPT US,CND,C&SA)	
		**********	
**********			
	1-639-678-12	CD MOTOR BOARD	
		**********	
		< CONNECTOR >	
CNP707	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P	
		< SWITCH >	
S701	1-572-085-11	SWITCH, LEAF (LIMIT)	
**********			
*	1-668-281-11	CONTROL BOARD	
		**********	
	3-018-845-01	HOLDER (LCD)	
		< LIQUID CRYSTAL DISPLAY >	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< SWITCH >	
S355	1-762-950-11	SWITCH, PUSH (1 KEY) (MEGA BASS)	
S801	1-762-798-11	SWITCH, KEYBOARD (⏮◁◁)	
S802	1-762-798-11	SWITCH, KEYBOARD (▷▷⏭)	
S803	1-762-798-11	SWITCH, KEYBOARD (PLAY MODE)	
S804	1-762-798-11	SWITCH, KEYBOARD (DISPLAY/ENTER)	
S805	1-762-798-11	SWITCH, KEYBOARD (▷II)	
S806	1-762-798-11	SWITCH, KEYBOARD (■)	
**********			
*	A-3321-040-A	MAIN BOARD, COMPLETE (US)	
*	A-3321-152-A	MAIN BOARD, COMPLETE (EA)	
*	A-3321-156-A	MAIN BOARD, COMPLETE (IT)	
*	A-3321-157-A	MAIN BOARD, COMPLETE (CND)	
*	A-3321-159-A	MAIN BOARD, COMPLETE (E)	
*	A-3321-160-A	MAIN BOARD, COMPLETE (AEP,CIS,UK)	
*	A-3321-172-A	MAIN BOARD, COMPLETE (EE)	
*	A-3321-303-A	MAIN BOARD, COMPLETE (C&SA)	
*	A-3321-304-A	MAIN BOARD, COMPLETE (SP)	
		**********	
	3-009-192-01	GEAR, TUNING CAPACITOR	
	3-009-194-31	KNOB (FUN) (EXCEPT KR,EA)	
	3-009-194-41	KNOB (FUN) (KR,EA)	
*	3-023-888-01	PLATE (CD), SHIELD	
		< CAPACITOR >	
C1	1-162-215-31	CERAMIC 47PF 5% 50V (US,CND,C&SA)	
C2	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C3	1-104-664-11	ELECT 47uF 20% 10V	
C5	1-162-205-31	CERAMIC 18PF 5% 50V (EXCEPT EE)	
C5	1-162-195-31	CERAMIC 4.7PF 10% 50V (EE)	
C6	1-102-961-00	CERAMIC 27PF 5% 50V (CFD-V15/CFD-V24:IT,KR,EA)	
C6	1-102-962-00	CERAMIC 30PF 5% 50V (AEP,CIS,UK,SP)	
C6	1-102-947-00	CERAMIC 10PF 5% 50V (EE)	
C7	1-162-196-31	CERAMIC 5.6PF 10% 50V (EXCEPT IT,EA)	

Ref. No.	Part No.	Description			Remark
C7	1-162-197-31	CERAMIC	6.8PF	10%	50V (IT,EA)
C8	1-162-189-31	CERAMIC	1.5PF	20%	50V (US,CND,C&SA)
C8	1-162-193-31	CERAMIC	3.3PF	10%	50V (E,EE,KR,EA)
C8	1-162-191-31	CERAMIC	2.2PF	10%	50V (AEP,IT,CIS,UK,SP)
C9	1-162-306-11	CERAMIC	0.01uF	20%	16V
C10	1-162-306-11	CERAMIC	0.01uF	20%	16V
C11	1-126-963-11	ELECT	4.7uF	20%	50V
C12	1-124-903-11	ELECT	1uF	20%	50V
C13	1-104-664-11	ELECT	47uF	20%	10V
C14	1-104-664-11	ELECT	47uF	20%	10V
C15	1-162-306-11	CERAMIC	0.01uF	20%	16V
C16	1-126-961-11	ELECT	2.2uF	20%	50V
C17	1-124-443-00	ELECT	100uF	20%	10V
C18	1-161-053-00	CERAMIC	0.015uF	10%	50V (US,CND,C&SA)
C18	1-162-839-11	CERAMIC	0.01uF	10%	16V (EXCEPT US,CND,C&SA)
C19	1-161-053-00	CERAMIC	0.015uF	10%	50V (US,CND,C&SA)
C19	1-162-839-11	CERAMIC	0.01uF	10%	16V (EXCEPT US,CND,C&SA)
C20	1-162-306-11	CERAMIC	0.01uF	20%	16V
C21	1-162-205-31	CERAMIC	18PF	5%	50V
C22	1-124-903-11	ELECT	1uF	20%	50V
C23	1-124-902-00	ELECT	0.47uF	20%	50V
C24	1-126-963-11	ELECT	4.7uF	20%	50V
C25	1-162-294-31	CERAMIC	0.001uF	10%	50V (US,CND,C&SA)
C26	1-162-294-31	CERAMIC	0.001uF	10%	50V
C28	1-162-306-11	CERAMIC	0.01uF	20%	16V
C29	1-162-294-31	CERAMIC	0.001uF	10%	50V(EE)
C101	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C102	1-104-664-11	ELECT	47uF	20%	10V
C103	1-161-020-11	CERAMIC	0.039uF	10%	16V
C104	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C108	1-124-902-00	ELECT	0.47uF	20%	50V
C109	1-124-903-11	ELECT	1uF	20%	50V
C121	1-124-903-11	ELECT	1uF	20%	50V
C122	1-161-057-00	CERAMIC	0.033uF	10%	50V (EA,SP)
C122	1-162-843-11	CERAMIC	0.022uF	10%	16V (EXCEPT EA,SP)
C140	1-124-902-00	ELECT	0.47uF	20%	50V
C151	1-104-664-11	ELECT	47uF	20%	10V
C152	1-162-294-31	CERAMIC	0.001uF	10%	50V
C153	1-124-443-00	ELECT	100uF	20%	10V
C154	1-124-473-11	ELECT	1000uF	20%	10V
C155	1-136-165-00	FILM	0.1uF	5%	50V
C156	1-162-282-31	CERAMIC	100PF	10%	50V
C157	1-161-020-11	CERAMIC	0.039uF	10%	16V
C158	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C201	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C202	1-104-664-11	ELECT	47uF	20%	10V
C203	1-161-020-11	CERAMIC	0.039uF	10%	16V
C204	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C205	1-162-215-31	CERAMIC	47PF	5%	50V
C208	1-124-902-00	ELECT	0.47uF	20%	50V
C209	1-124-903-11	ELECT	1uF	20%	50V
C221	1-124-903-11	ELECT	1uF	20%	50V
C222	1-161-057-00	CERAMIC	0.033uF	10%	50V (EA,SP)
C222	1-162-843-11	CERAMIC	0.022uF	10%	16V (EXCEPT EA,SP)
C240	1-124-902-00	ELECT	0.47uF	20%	50V
C251	1-104-664-11	ELECT	47uF	20%	10V
C252	1-162-294-31	CERAMIC	0.001uF	10%	50V
C253	1-124-443-00	ELECT	100uF	20%	10V
C254	1-124-473-11	ELECT	1000uF	20%	10V
C255	1-136-165-00	FILM	0.1uF	5%	50V
C256	1-162-282-31	CERAMIC	100PF	10%	50V
C257	1-161-020-11	CERAMIC	0.039uF	10%	16V
C258	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C301	1-124-443-00	ELECT	100uF	20%	10V
C302	1-124-443-00	ELECT	100uF	20%	10V
C303	1-124-907-11	ELECT	10uF	20%	50V
C304	1-124-443-00	ELECT	100uF	20%	10V
C311	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C312	1-104-664-11	ELECT	47uF	20%	10V
C313	1-130-468-00	MYLAR	560PF	5%	50V
C314	1-104-663-11	ELECT	33uF	20%	16V
C315	1-162-306-11	CERAMIC	0.01uF	20%	16V
C316	1-124-907-11	ELECT	10uF	20%	50V
C317	1-126-233-11	ELECT	22uF	20%	50V
C320	1-162-306-11	CERAMIC	0.01uF	20%	16V
C341	1-126-937-11	ELECT	4700uF	20%	16V
C343	1-162-306-11	CERAMIC	0.01uF	20%	16V
C345	1-162-306-11	CERAMIC	0.01uF	20%	16V
C346	1-162-306-11	CERAMIC	0.01uF	20%	16V
C347	1-104-666-11	ELECT	220uF	20%	25V
C348	1-124-472-11	ELECT	470	20%	10V
C351	1-126-941-11	ELECT	470	20%	25V
C359	1-162-306-11	CERAMIC	0.01uF	20%	16V
C701	1-162-600-11	CERAMIC	0.0047uF	20%	16V
C702	1-162-306-11	CERAMIC	0.01uF	20%	16V
C703	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C704	1-130-491-00	MYLAR	0.047uF	5%	50V
C705	1-162-306-11	CERAMIC	0.01uF	20%	16V
C706	1-104-664-11	ELECT	47uF	20%	10V
C707	1-161-494-00	CERAMIC	0.022uF		25V
C708	1-136-165-00	FILM	0.1uF	5%	50V
C709	1-136-165-00	CERAMIC	0.1uF		50V
C710	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C711	1-162-203-31	CERAMIC	15PF	5%	50V
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V
C713	1-136-165-00	FILM	0.1uF	5%	50V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-124-903-11	ELECT	1uF	20%	50V
C716	1-136-165-00	FILM	0.1uF	5%	50V
C717	1-136-165-00	MYLAR	0.1uF	5%	50V
C718	1-131-377-00	TANTALUM	10uF	10%	10V
C719	1-104-664-11	ELECT	47uF	20%	10V
C720	1-162-306-11	CERAMIC	0.01uF	20%	16V

MAIN

Ref. No.	Part No.	Description			Remark
C721	1-130-489-00	MYLAR	0.033uF	5%	50V
C722	1-130-489-00	MYLAR	0.033uF	5%	50V
C723	1-162-306-11	CERAMIC	0.01uF	20%	16V
C724	1-130-489-00	MYLAR	0.033uF	5%	50V
C725	1-137-440-11	FILM	0.018uF	5%	50V
C726	1-162-306-11	CERAMIC	0.01uF	20%	16V
C727	1-162-199-31	CERAMIC	10PF	5%	50V
C728	1-104-664-11	ELECT	47uF	20%	10V
C729	1-126-962-11	ELECT	3.3uF	20%	50V
C730	1-130-493-00	MYLAR	0.068uF	5%	50V
C731	1-162-215-31	CERAMIC	47PF	5%	50V
C732	1-162-306-11	CERAMIC	0.01uF	20%	16V
C733	1-162-282-31	CERAMIC	100PF	10%	50V
C734	1-162-282-31	CERAMIC	100PF	10%	50V
C735	1-162-282-31	CERAMIC	100PF	10%	50V
C736	1-162-294-31	CERAMIC	0.001uF	10%	50V
C737	1-161-494-00	CERAMIC	0.022uF		25V
C739	1-162-282-31	CERAMIC	100PF	10%	50V
C740	1-162-282-31	CERAMIC	100PF	10%	50V
C741	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C742	1-162-306-11	CERAMIC	0.01uF	20%	16V
C743	1-104-664-11	ELECT	47uF	20%	10V
C744	1-124-472-11	ELECT	470uF	20%	10V
C760	1-162-306-11	CERAMIC	0.01uF	20%	16V
C761	1-162-294-31	CERAMIC	0.001uF	10%	50V
C762	1-162-282-31	CERAMIC	100PF	10%	50V
			(EXCEPT CFD-V15/CFD-V24 : EA)		
C799	1-130-491-00	MYLAR	0.047uF	5%	50V
C801	1-104-664-11	ELECT	47uF	20%	10V
C802	1-126-233-11	ELECT	22uF	20%	50V
C804	1-104-666-11	ELECT	220uF	20%	6.3V
C805	1-126-963-11	ELECT	4.7uF	20%	50V
C806	1-126-963-11	ELECT	4.7uF	20%	50V
C807	1-162-292-31	CERAMIC	680PF	10%	50V
C808	1-162-292-31	CERAMIC	680PF	10%	50V
C809	1-162-284-31	CERAMIC	150PF	10%	50V
C810	1-162-284-31	CERAMIC	150PF	10%	50V
C811	1-124-907-11	ELECT	10uF	20%	50V
C812	1-162-306-11	CERAMIC	0.01uF	20%	16V
C813	1-104-664-11	ELECT	47uF	20%	10V
C814	1-162-306-11	CERAMIC	0.01uF	20%	16V
C815	1-162-203-31	CERAMIC	15PF	5%	50V
C816	1-162-203-31	CERAMIC	15PF	5%	50V
C817	1-162-306-11	CERAMIC	0.01uF	20%	16V
C818	1-162-306-11	CERAMIC	0.01uF	20%	16V
C819	1-162-306-11	CERAMIC	0.01uF	20%	16V
C820	1-136-173-00	FILM	0.47uF	5%	50V
C821	1-162-306-11	CERAMIC	0.01uF	20%	16V
C822	1-162-290-31	CERAMIC	470PF	10%	50V
C823	1-162-286-21	CERAMIC	220PF	10%	50V
C824	1-136-169-00	FILM	0.22uF	5%	50V
C825	1-162-306-11	CERAMIC	0.01uF	20%	16V
C826	1-162-306-11	CERAMIC	0.01uF	20%	16V
C827	1-162-282-31	CERAMIC	100PF	10%	50V
C827	1-162-286-21	CERAMIC	220PF	10%	50V
					(C&SA,SP)
C828	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref. No.	Part No.	Description			Remark
C829	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< FILTER >			
CF1	1-760-738-61	FILTER, CERAMIC			
CF2	1-577-072-11	FILTER, CERAMIC			
		< CONNECTOR >			
CNP301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
CNP302	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
CNP303	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
CNP304	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
CNP702	1-770-674-11	CONNECTOR, FFC/FPC 16P			
* CNP801	1-691-584-11	PIN, CONNECTOR (PC BOARD) 13P			
* CNP802	1-691-583-21	PIN, CONNECTOR (PC BOARD) 12P			
* CNP803	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P			
* CNP901	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P			
		< TRIMMER >			
CT1	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CT1	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CT1	1-141-560-11	CAP, VAR (TUNING) (EE)			
CT2	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CT2	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CT2	1-141-560-11	CAP, VAR (TUNING) (EE)			
CT3	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CT3	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CT3	1-141-560-11	CAP, VAR (TUNING) (EE)			
CT4	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CT4	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CT4	1-141-560-11	CAP, VAR (TUNING) (EE)			
		< VARIABLE CAPACITOR >			
CV1	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CV1	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CV1	1-141-560-11	CAP, VAR (TUNING) (EE)			
CV2	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CV2	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CV2	1-141-560-11	CAP, VAR (TUNING) (EE)			
CV3	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CV3	1-141-561-11	CAP, VAR (TUNING) (EXCEPT US,CND, C&SA,EE)			
CV3	1-141-560-11	CAP, VAR (TUNING) (EE)			
CV4	1-141-559-11	CAP, VAR (TUNING) (US,CND,C&SA)			
CV4	1-141-561-11	CAP, VAR (TUNING)(EXCEPT US,CND, C&SA,EE)			
CV4	1-141-560-11	CAP, VAR (TUNING) (EE)			
		< DIODE >			
D1	8-719-991-33	DIODE 1SS133T-77			
D2	8-719-991-33	DIODE 1SS133T-77			
D301	8-719-991-33	DIODE 1SS133T-77			
D303	8-719-991-33	DIODE 1SS133T-77			
D304	8-719-991-33	DIODE 1SS133T-77			

Ref. No.	Part No.	Description	Remark
D305	8-719-991-33	DIODE 1SS133T-77	
D306	8-719-991-33	DIODE 1SS133T-77 (EXCEPT US)	
D307	8-719-991-33	DIODE 1SS133T-77 (EXCEPT US)	
D308	8-719-109-90	DIODE RD5.6ESB3	
D309	8-719-991-33	DIODE 1SS133T-77	
D310	8-719-059-97	LED L-34HD (OPR/BATT)	
D311	8-719-109-98	DIODE RD6.8ES-B3	
D312	8-719-991-33	DIODE 1SS133T-77 (EXCEPT US)	
D314	8-719-991-33	DIODE 1SS133T-77	
D317	8-719-991-33	DIODE 1SS133T-77	
D318	8-719-991-33	DIODE 1SS133T-77	
		< FERRITE BEAD >	
FB151	1-410-397-21	FERRITE BEAD INDUCTOR	
FB251	1-410-397-21	FERRITE BEAD INDUCTOR	
FB351	1-410-397-21	FERRITE BEAD INDUCTOR	
FB807	1-410-397-21	FERRITE BEAD INDUCTOR	
FB808	1-410-397-21	FERRITE BEAD INDUCTOR	
		< FILTER >	
FL1	1-236-711-31	FILTER, BAND PASS (E,AEP,IT,CIS,UK,EA,SP)	
FL1	1-233-452-11	FILTER, BAND PASS (EE)	
		< IC >	
IC1	8-752-056-23	IC CXA1538S	
IC301	8-759-264-71	IC TA2068N	
IC304	8-759-820-22	IC LA4597	
IC701	8-752-082-14	IC CXA1992BR	
IC702	8-752-893-95	IC CXP401-601R	
IC703	8-759-473-42	IC BA6898FP	
		< JACK >	
J301	1-566-891-11	JACK (🎧)	
		< CABLE, HOLDER >	
* KH1	1-573-287-11	HOLDER, CABLE 2P (AEP,IT,CIS,UK,EE)	
* KH804	1-573-287-11	HOLDER, CABLE 2P	
		< COIL >	
L1	1-406-998-11	COIL, AIR-CORE (US,CND,C&SA)	
L1	1-406-999-11	COIL, AIR-CORE (AEP,IT,CIS,UK,SP,EA,E)	
L1	1-411-266-11	COIL, AIR-CORE (EE)	
L2	1-411-387-11	COIL, AIR-CORE (CFD-V15)	
L2	1-416-570-11	COIL, AIR-CORE (AEP,CIS,UK,SP)	
L2	1-406-958-11	COIL (WITH CORE) (EE)	
L2	1-406-957-21	COIL (WITH CORE) (IT,EA)	
L3	1-501-841-11	ANTENNA, FERRITE-ROD (MW)	(US,CND,C&SA)
L3	1-501-841-21	ANTENNA, FERRITE-ROD (MW)	(EXCEPT US,CND,C&SA)
L4	1-406-040-00	COIL (OSC)	
L701	1-412-488-11	INDUCTOR 1uH	
L702	1-410-509-11	INDUCTOR 10uH (US,CND,C&SA,E,EA)	
		< TRANSISTOR >	
Q1	8-729-036-57	TRANSISTOR KRC101M-AT	
Q101	8-729-036-80	TRANSISTOR KRC110M	
Q102	8-729-194-57	TRANSISTOR 2SC945-P	
Q103	8-729-194-57	TRANSISTOR 2SC945-P	
Q201	8-729-036-80	TRANSISTOR KRC110M	
Q202	8-729-194-57	TRANSISTOR 2SC945-P	
Q203	8-729-194-57	TRANSISTOR 2SC945-P	
Q301	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q306	8-729-036-67	TRANSISTOR KRC111M-AT	
Q307	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q308	8-729-036-57	TRANSISTOR KRC101M-AT	
Q309	8-729-021-82	TRANSISTOR 2SD2396K	
Q310	8-729-036-86	TRANSISTOR KTC3203Y-AT	
Q701	8-729-037-11	TRANSISTOR KTA1271-Y-AT	
		< RESISTOR >	
R1	1-247-815-91	CARBON 220 5% 1/4W	(US,CND,C&SA,EE)
R2	1-249-421-11	CARBON 2.2K 5% 1/4W	
R3	1-249-441-11	CARBON 100K 5% 1/4W	
R4	1-247-843-11	CARBON 3.3K 5% 1/4W	(US,CND,C&SA)
R4	1-162-191-31	CERAMIC 2.2PF 10% 50V	(IT)
R4	1-162-195-31	CERAMIC 4.7PF 10% 50V	(EA)
R5	1-249-411-11	CARBON 330 5% 1/4W	(EXCEPT US,CND,C&SA,EE)
R5	1-249-413-11	CARBON 470 5% 1/4W	(US,CND,C&SA)
R5	1-249-414-11	CARBON 560 5% 1/4W	(EE)
R6	1-249-403-11	CARBON 68 5% 1/4W	
R7	1-249-427-11	CARBON 6.8K 5% 1/4W	
R8	1-249-427-11	CARBON 6.8K 5% 1/4W	
R13	1-249-421-11	CARBON 2.2K 5% 1/4W	
R14	1-249-429-11	CARBON 10K 5% 1/4W	
R15	1-249-429-11	CARBON 10K 5% 1/4W	(AEP,EE,IT,CIS,UK,SP)
R101	1-249-431-11	CARBON 15K 5% 1/4W	
R102	1-249-404-00	CARBON 82 5% 1/4W	
R103	1-249-441-11	CARBON 100K 5% 1/4W	
R104	1-247-843-11	CARBON 3.3K 5% 1/4W	
R105	1-249-435-11	CARBON 33K 5% 1/4W	
R106	1-249-421-11	CARBON 2.2K 5% 1/4W	
R109	1-249-426-11	CARBON 5.6K 5% 1/4W	
R110	1-247-807-31	CARBON 100 5% 1/4W	
R121	1-249-417-11	CARBON 1K 5% 1/4W	
R122	1-247-843-11	CARBON 3.3K 5% 1/4W	
R123	1-247-895-91	CARBON 470K 5% 1/4W	
R124	1-249-413-11	CARBON 470 5% 1/4W	(EA,SP)
R124	1-249-417-11	CARBON 1K 5% 1/4W	(C&SA,E)
R124	1-249-421-11	CARBON 2.2K 5% 1/4W	(EXCEPT C&SA,E,EA,SP)
R140	1-249-441-11	CARBON 100K 5% 1/4W	
R141	1-249-419-11	CARBON 1.5K 5% 1/4W	
R143	1-249-429-11	CARBON 10K 5% 1/4W	
R151	1-249-417-11	CARBON 1K 5% 1/4W	
R153	1-247-807-31	CARBON 100 5% 1/4W	
R154	1-247-807-31	CARBON 100 5% 1/4W	

MAIN

Ref. No.	Part No.	Description			Remark
R155	1-249-431-11	CARBON	15K	5%	1/4W
R156	1-249-437-11	CARBON	47K	5%	1/4W
R201	1-249-431-11	CARBON	15K	5%	1/4W
R202	1-249-404-00	CARBON	82	5%	1/4W
R203	1-249-441-11	CARBON	100K	5%	1/4W
R204	1-247-843-11	CARBON	3.3K	5%	1/4W
R205	1-249-435-11	CARBON	33K	5%	1/4W
R206	1-249-421-11	CARBON	2.2K	5%	1/4W
R209	1-249-426-11	CARBON	5.6K	5%	1/4W
R210	1-247-807-31	CARBON	100	5%	1/4W
R221	1-249-417-11	CARBON	1K	5%	1/4W
R222	1-247-843-11	CARBON	3.3K	5%	1/4W
R223	1-247-895-91	CARBON	470K	5%	1/4W
R224	1-249-413-11	CARBON	470	5%	1/4W (EA,SP)
R224	1-249-417-11	CARBON	1K	5%	1/4W (C&SA,E)
R224	1-249-421-11	CARBON	2.2K	5%	1/4W (EXCEPT C&SA,E,EA,SP)
R240	1-249-441-11	CARBON	100K	5%	1/4W
R241	1-249-419-11	CARBON	1.5K	5%	1/4W
R243	1-249-429-11	CARBON	10K	5%	1/4W
R251	1-249-417-11	CARBON	1K	5%	1/4W
R253	1-247-807-31	CARBON	100	5%	1/4W
R254	1-247-807-31	CARBON	100	5%	1/4W
R255	1-249-431-11	CARBON	15K	5%	1/4W
R256	1-249-437-11	CARBON	47K	5%	1/4W
R301	1-247-903-00	CARBON	1M	5%	1/4W
R302	1-249-441-11	CARBON	100K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R305	1-247-903-00	CARBON	1M	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-249-429-11	CARBON	10K	5%	1/4W
R308	1-249-417-11	CARBON	1K	5%	1/4W
R309	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-247-810-11	CARBON	130	5%	1/4W
R312	1-249-427-11	CARBON	6.8K	5%	1/4W
R313	1-249-393-11	CARBON	10	5%	1/4W
R314	1-249-425-11	CARBON	4.7K	5%	1/4W
R315	1-247-863-91	CARBON	22K	5%	1/4W
R319	1-247-843-11	CARBON	3.3K	5%	1/4W
⚠R340	1-249-381-11	CARBON	1	5%	1/4W F (US)
R341	1-249-437-11	CARBON	47K	5%	1/4W
R342	1-249-419-11	CARBON	1.5K	5%	1/4W
R343	1-249-415-11	CARBON	680	5%	1/4W
R344	1-247-815-91	CARBON	220	5%	1/4W
R345	1-247-815-91	CARBON	220	5%	1/4W
R346	1-249-421-11	CARBON	2.2K	5%	1/4W
R347	1-247-807-31	CARBON	100	5%	1/4W
R348	1-249-421-11	CARBON	2.2K	5%	1/4W
R349	1-249-414-11	CARBON	560	5%	1/4W
R350	1-249-393-11	CARBON	10	5%	1/4W
R701	1-249-440-11	CARBON	82K	5%	1/4W
R702	1-249-439-11	CARBON	68K	5%	1/4W
R703	1-249-439-11	CARBON	68K	5%	1/4W
R704	1-249-439-11	CARBON	68K	5%	1/4W
R705	1-249-439-11	CARBON	68K	5%	1/4W
R706	1-249-440-11	CARBON	82K	5%	1/4W
R707	1-247-887-00	CARBON	220K	5%	1/4W
R709	1-247-883-00	CARBON	150K	5%	1/4W
R710	1-247-885-00	CARBON	180K	5%	1/4W
R711	1-247-883-00	CARBON	150K	5%	1/4W
R712	1-247-891-00	CARBON	330K	5%	1/4W
R714	1-249-428-11	CARBON	8.2K	5%	1/4W
R715	1-249-429-11	CARBON	10K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-247-903-00	CARBON	1M	5%	1/4W
R718	1-247-899-11	CARBON	680K	5%	1/4W
R719	1-249-393-11	CARBON	10	5%	1/4W
R720	1-249-430-11	CARBON	12K	5%	1/4W
R721	1-247-862-11	CARBON	20K	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-247-896-11	CARBON	510K	5%	1/4W
R724	1-249-439-11	CARBON	68K	5%	1/4W
R725	1-247-883-00	CARBON	150K	5%	1/4W
R726	1-247-876-11	CARBON	75K	5%	1/4W
R727	1-249-437-11	CARBON	47K	5%	1/4W
R728	1-249-441-11	CARBON	100K	5%	1/4W
R729	1-249-430-11	CARBON	12K	5%	1/4W
R730	1-249-435-11	CARBON	33K	5%	1/4W
R731	1-247-863-91	CARBON	22K	5%	1/4W
R734	1-247-843-11	CARBON	3.3K	5%	1/4W
R735	1-249-427-11	CARBON	6.8K	5%	1/4W
R736	1-247-863-91	CARBON	22K	5%	1/4W
R737	1-247-843-11	CARBON	3.3K	5%	1/4W
R738	1-249-435-11	CARBON	33K	5%	1/4W
R801	1-249-429-11	CARBON	10K	5%	1/4W
R803	1-249-430-11	CARBON	12K	5%	1/4W
R804	1-249-430-11	CARBON	12K	5%	1/4W
R805	1-249-430-11	CARBON	12K	5%	1/4W
R806	1-249-430-11	CARBON	12K	5%	1/4W
R807	1-249-430-11	CARBON	12K	5%	1/4W
R808	1-249-430-11	CARBON	12K	5%	1/4W
R809	1-249-431-11	CARBON	15K	5%	1/4W
R810	1-249-431-11	CARBON	15K	5%	1/4W
R811	1-249-431-11	CARBON	15K	5%	1/4W
R820	1-249-417-11	CARBON	1K	5%	1/4W
R821	1-247-807-31	CARBON	100	5%	1/4W
R828	1-247-815-91	CARBON	220	5%	1/4W
R843	1-249-437-11	CARBON	47K	5%	1/4W
R845	1-247-843-11	CARBON	3.3K	5%	1/4W
R846	1-249-417-11	CARBON	1K	5%	1/4W
R847	1-249-429-11	CARBON	10K	5%	1/4W
R852	1-247-903-00	CARBON	1M	5%	1/4W
R853	1-247-887-00	CARBON	220K	5%	1/4W
R855	1-249-429-11	CARBON	10K	5%	1/4W

< VARIABLE RESISTOR >

RV1	1-228-995-00	RES, ADJ, METAL 22K (VCO)
RV351	1-225-438-11	RES, VAR, CARBON 20K/20K (TONE)
RV352	1-225-439-11	RES, VAR, CARBON 20K/20K (VOLUME)

< SWITCH >

S351	1-571-345-11	SWITCH, LEVER SLIDE (FUNCTION)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description		Remark
		< TRANSFORMER >		
T1	1-409-944-11	COIL (DET)		
T2	1-416-522-11	COIL (IFT)		
T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION		
		< VIBRATOR >		
X801	1-760-793-11	VIBRATOR, CERAMIC (16.9344MHz)		
**********				
*	1-668-288-21	MONO/ST SW BOARD (AEP,EE,IT,CIS,UK)		
		**********		
		< CONNECTOR >		
* CNP1	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P		(AEP,EE,IT,CIS,UK)
		< SWITCH >		
S302	1-771-060-11	SWITCH, SLIDE (FM MODE)		(AEP,EE,IT,CIS,UK)
**********				
*	1-668-284-11	POWER BOARD (US,CND, C&SA)		
*	1-668-284-21	POWER BOARD (EXCEPT US,CND, C&SA)		
		**********		
	1-533-233-31	HOLDER, FUSE		
		< CAPACITOR >		
C901	1-101-005-00	CERAMIC	22000PF	50V
C902	1-101-005-00	CERAMIC	22000PF	50V
C903	1-101-005-00	CERAMIC	22000PF	50V
C904	1-101-005-00	CERAMIC	22000PF	50V
		< DIODE >		
D901	8-719-063-79	DIODE 1N4002B		
D902	8-719-063-79	DIODE 1N4002B		
D903	8-719-063-79	DIODE 1N4002B		
D904	8-719-063-79	DIODE 1N4002B		
		< FUSE >		
⚠F902	1-532-464-31	FUSE, TIME LAG (T2.5AL/250V)		(EXCEPT US,CND,C&SA)
⚠F902	1-533-618-11	FUSE, GLASS CYLINDERICAL (3.15A/250V)		(US,CND,C&SA)
		< CABLE, HOLDER >		
* KH904	1-573-287-11	HOLDER, CABLE 2P		
**********				
*	1-668-287-11	REC SW BOARD (US,CND, C&SA)		
*	1-668-287-21	REC SW BOARD (EXCEPT US,CND, C&SA)		
		**********		
		< SWITCH >		
S301	1-762-565-11	SWITCH, SLIDE (REC/PB)		
**********				

Ref. No.	Part No.	Description	Remark
*	1-668-282-11	VOL SEL BOARD (E,EA)	
		**********	
		< SWITCH >	
⚠S901	1-552-921-00	SWITCH, POWER (VOLTAGE CHANGE)	(VOLTAGE SELECTOR)(E,EA)
**********			
		MISCELLANEOUS	
		**********	
56	1-452-899-11	MAGNET	
73	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
107	1-533-233-31	HOLDER, FUSE	
⚠254	8-848-483-05	OPTICAL PICK-UP KSS-213C	
255	X-2626-202-1	CHASSIS ASSY (MB) (RP), MOTOR	(INCLUDING M702) (SPINDLE)
ANT1	1-501-883-11	ANTENNA, TELESCOPIC	
⚠F901	1-532-467-31	FUSE, TIME LAG (T0.315AL/250V) (E,EA)	
⚠F902	1-532-464-31	FUSE, TIME LAG (T2.5AL/250V)	(EXCEPT US,CND,C&SA)
⚠F902	1-533-618-11	FUSE, GLASS CYLINDERICAL (3.15A/250V)	(US,CND,C&SA)
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-364-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	
M601	A-3304-619-A	MOTOR ASSY	
M701	X-2625-769-1	GEAR ASSY (MB) (RP), MOTOR (SLED)	
S601	1-762-679-11	SWITCH, LEAF (MD POWER)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY) (DOOR OPEN/CLOSE)	
SP301	1-505-889-11	SPEAKER (10cm) (L-CH)	
SP302	1-505-889-11	SPEAKER (10cm) (R-CH)	
⚠T901	1-431-231-11	TRANSFORMER, POWER (AEP,EE,IT,CIS,UK,	SP,AR)
⚠T901	1-431-230-11	TRANSFORMER, POWER (US,C&SA)	
⚠T901	1-431-230-21	TRANSFORMER, POWER (CND)	
⚠T901	1-431-233-11	TRANSFORMER, POWER (E,EA)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-557-287-11	CORD, POWER (C&SA)	
⚠	1-475-664-11	ADAPTOR, CONVERSION (2P) (E,EA)	
⚠	1-696-818-11	CORD, POWER (US,CND)	
⚠	1-696-820-21	CORD, POWER (E,AEP,EE,IT,CIS,UK,SP,EA)	
⚠	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)	
	3-861-410-11	MANUAL, INSTRUCTION (ENGLISH)	(US,CND,C&SA)
	3-861-410-21	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-861-410-31	MANUAL, INSTRUCTION (ENGLISH, SPANISH)	(E,AEP,EE,UK,SP,EA)
	3-861-410-41	MANUAL, INSTRUCTION (FRENCH, GERMAN)	(AEP,SP,EA)
	3-861-410-51	MANUAL, INSTRUCTION (DUTCH,	PORTUGUESE)(E,AEP)
	3-861-410-61	MANUAL, INSTRUCTION (ITALIAN) (IT)	
	3-861-410-71	MANUAL, INSTRUCTION (POLISH, CZECH,	HUNGARIAN) (CIS)
	3-861-410-81	MANUAL, INSTRUCTION (FINNISH, SWEDISH)	(CIS)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
	3-861-410-91	MANUAL, INSTRUCTION (RUSSIAN) (EE)	
	3-861-411-11	MANUAL, INSTRUCTION (SPANISH) (C&SA)	

****

****
HARDWARE LIST
****

#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-682-548-04	SCREW +B 3X8	
#4	7-621-773-95	SCREW +B 2.6X6	
#5	7-621-255-15	SCREW +P 2X3	
#6	7-685-649-79	SCREW +BVTP 3X14 TYPE2 N-S	
#7	7-621-770-87	SCREW +B 2.6X5	
#8	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#10	7-685-648-79	SCREW +BVTP 3X12 BZN-N	
#11	7-685-649-14	SCREW +BVTP 3X14	
#12	7-685-648-14	SCREW +BVTP 3X12	

9-923-320-11

Sony Corporation
Personal A&V Products Company

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CFD-V15/V24

SONY

SERVICE MANUAL

1998. 06

US Model
Canadian Model
CFD-V15
AEP Model
UK Model
CFD-V24
E Model
CFD-V15/V24

SUPPLEMENT - 1

File this Supplement with the Service Manual.

Subject :
CHANGE OF EXPLODED VIEWS PARTS LIST

(ECN-RC800384)

- Abbreviation
  CND : Canadian SP : Singapore
  EA : Saudi Arabia IT : Italian
  EE : East European CIS : Russian
  C&SA : Central and South America

● CHANGE OF EXPLODED VIEWS PARTS LIST (Page 32 – 34)

page	Before Change				After Change		
	Ref. No.	Part No.	Description	remark	Part No.	Description	remark
32	1	X-3375-386-1	CABINET (FRONT) SUB ASSY (SP)		X-3375-386-1	CABINET (FRONT) SUB ASSY (SILVER)	(AEP,UK,CIS,SP)
	1	X-3375-390-1	CABINET (FRONT) SUB ASSY (EA)		X-3375-390-1	CABINET (FRONT) SUB ASSY (SILVER) (EA)	
	1	X-3375-392-1	CABINET (FRONT) SUB ASSY (EE)		X-3375-392-1	CABINET (FRONT) SUB ASSY (DARK GRAY) (EE)	
	1	X-3375-394-1	CABINET (FRONT) SUB ASSY (C&SA)		X-3375-394-1	CABINET (FRONT) SUB ASSY (DARK GRAY)	(CND,C&SA)
	1	X-3375-395-1	CABINET (FRONT) SUB ASSY (IT)		X-3375-395-1	CABINET (FRONT) SUB ASSY (DARK GRAY) (IT)	
	1	X-3375-396-1	CABINET (FRONT) SUB ASSY (E)		X-3375-396-1	CABINET (FRONT) SUB ASSY (DARK GRAY) (E)	
	1	X-3375-400-1	CABINET (FRONT) SUB ASSY	(AEP, UK, CIS)	X-3375-400-1	CABINET (FRONT) SUB ASSY (DARK GRAY)	(AEP, UK, CIS)
					X-3375-955-1	CABINET (FRONT) SUB ASSY (SILVER) (EE)	
	1	X-4949-821-1	CABINET (FRONT) SUB ASSY (CND)				
	2	3-018-837-11	KNOB (VOL) (SP,EA)		3-018-837-11	KNOB (VOL) (SLIVER) (AEP,UK,CIS,EE,SP,EA)	
	5	3-018-840-11	KNOB (TU) (SP,EA)		3-018-840-11	KNOB (TU) (SLIVER) (AEP,UK,CIS,EE,SP,EA)	
33	58	X-3375-399-1	HOLDER SUB ASSY, CASSETTE		X-3375-399-1	HOLDER SUB ASSY, CASSETTE (DARK GRAY, SILVER)	
34	103	3-009-194-41	KNOB (FUN) (SP,EA)		3-009-194-41	KNOB (FUN) (SILVER) (SP,EA,AEP,UK,CIS,EE)	
	106	X-3375-384-1	CABINET (REAR) (CND, C&SA)		X-3375-384-1	CABINET (REAR) (DARK GRAY) (CND,C&SA)	
	106	X-3375-387-1	CABINET (REAR) (SP)				
	106	X-3375-391-1	CABINET (REAR) (EA,E)		X-3375-391-1	CABINET (REAR) (DARK GRAY) (EA,E)	
	106	X-3375-393-1	CABINET (REAR) (EE)		X-3375-393-1	CABINET (REAR) (DARK GRAY) (EE,CIS,SP)	
	106	X-3375-401-1	CABINET (REAR) (AEP,IT,UK,CIS)		X-3375-401-1	CABINET (REAR) (DARK GRAY) (AEP,IT,UK)	

● CORRECTION

☛ **: indicates corrected portion**

page	Incorrect				Correct		
	Ref. No.	Part No.	Description	remark	Part No.	Description	remark
43	255	X-2626-201-1	CHASSIS ASSY (MB) (RP), MOTOR (INCLUDING M702) (SPINDLE)		X-2626-202-1 ☛	CHASSIS ASSY (MB) (RP), MOTOR (INCLUDING M702) (SPINDLE)	

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Personal A&V Products Company

9-923-320-81

CFD-V15/V24

SONY

SERVICE MANUAL

1998. 08

US Model
Canadian Model
CFD-V15
AEP Model
UK Model
CFD-V24
E Model
CFD-V15/V24

SUPPLEMENT - 2

File this Supplement with the Service Manual and Supplement-1.

Subject :
- **ARGENTINA MODEL HAS BEEN ADDED FOR CFD-V24**
- **CHANGE OF PARTS LIST**

(ECN-RC800167/RC800540)

- Abbreviation
  CND : Canadian SP : Singapore
  EA : Saudi Arabia IT : Italian
  EE : East European CIS : Russian
  AR : Argentina
  C&SA : Central and South America

The CFD-V24 (Argentina model) is approximately the same as the CFD-V24 (Singapore model).
Consequently, only difference between CFD-V24 (Argentina model) and CFD-V24 (Singapore model) are listed.
For other informations, please refer to the previously issued CFD-V15/V24 service manual (9-923-320-11) and Supplement-1 (9-923-320-81).

● DIFFERENCE PARTS LIST

ACCESSORIES & PACKING MATERIALS (Service Manual See page 43)

CFD-V24 : Singapore Model		CFD-V24 : Argentina Model	
Part No.	Description	Part No.	Description
⚠1-696-820-21	CORD, POWER (E,AEP,EE,IT,CIS,UK,SP,EA)	⚠1-783-952-21	CORD, POWER (AR)
3-861-410-31	MANUAL, INSTRUCTION (ENGLISH,SPANISH) (E,AEP,EE,UK,SP,EA)	3-861-410-31	MANUAL, INSTRUCTION (ENGLISH,SPANISH) (E,AEP,EE,UK,SP,EA,AR)
3-861-410-41	MANUAL, INSTRUCTION (FRENCH,GERMAN) (AEP,SP,EA)		————————

● CHANGED PARTS LIST

EXPLODED VIEWS (Service Manual See page 33 to 36, 43)

Page	Before Change				After Change		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
33	71	3-910-095-11	RUBBER, VIBRATION PROOF (RED)		3-910-095-31	RUBBER, VIBRATION PROOF (RED)	
	72	3-910-095-01	RUBBER, VIBRATION PROOF (GREEN)		3-910-095-21	RUBBER, VIBRATION PROOF (GREEN)	
34, 43	⚠ F902		————————		1-532-338-31	FUSE, TIME LAG (T2.0AL/250V) (E,EA)	
	⚠ F902	1-532-464-31	FUSE, TIME LAG (T2.5AL/250V) (EXCEPT US,CND,C&SA)		1-532-464-31	FUSE, TIME LAG (T2.5AL/250V) (EXCEPT US,CND,C&SA,E,EA)	
35	* 161	3-008-589-01	SLIDER (FF)		3-008-589-13	SLIDER (FF)	
	168	3-934-834-01	SPRING (BT)		3-022-794-02	SPRING (BT)	
	HRP301	1-500-364-11	HEAD, MAGNETIC (RECORD/PLAYBACK)		1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
36	M601	A-3304-619-A	MOTOR ASSY		A-3320-446-A	MOTOR ASSY	

ELECTRICAL PARTS LIST (Service Manual See page 39 to 43)

Page	Before Change						After Change					
	Ref. No.	Part No.	Description			Remark	Part No.	Description				Remark
39	C17	1-124-443-00	ELECT	100uF	20%	10V	1-104-664-11 1-124-443-00	ELECT ELECT	47uF 100uF	20% 20%	10V 10V	(US,CND,C&SA) (EXCEPT US,CND,C&SA)
	C20	1-162-306-11	CERAMIC	0.01uF	20%	16V	1-162-306-11	CERAMIC	0.01uF	20%	16V	(EXCEPT US,CND,C&SA)
	C108	1-124-902-00	ELECT	0.47uF	20%	50V	1-124-902-00 1-126-956-91	ELECT ELECT	0.47uF 0.1uF	20% 20%	50V 50V	(EXCEPT EE) (EE)
	C122	1-161-057-00	CERAMIC	0.033uF	10%	50V (EA,SP)	1-161-057-00	CERAMIC	0.033uF	10%	50V	(EA,SP,E,C&SA,AR)
	C122	1-162-843-11	CERAMIC	0.022uF	10%	16V (EXCEPT EA,SP)	1-162-843-11	CERAMIC	0.022uF	10%	16V	(EXCEPT EA,SP,E,C&SA,AR)
	C208	1-124-902-00	ELECT	0.47uF	20%	50V	1-124-902-00 1-126-956-91	ELECT ELECT	0.47uF 0.1uF	20% 20%	50V 50V	(EXCEPT EE) (EE)
	C222	1-161-057-00	CERAMIC	0.033uF	10%	50V (EA,SP)	1-161-057-00	CERAMIC	0.033uF	10%	50V	(EA,SP,E,C&SA,AR)
	C222	1-162-843-11	CERAMIC	0.022uF	10%	16V (EXCEPT EA,SP)	1-162-843-11	CERAMIC	0.022uF	10%	16V	(EXCEPT EA,SP,E,C&SA,AR)
	C715	1-124-903-11	ELECT	1uF	20%	50V	1-124-907-11	ELECT	10uF	20%	50V	
40	C827	1-162-282-31	CERAMIC	100PF	10%	50V		————————				
	C827	1-162-286-21	CERAMIC	220PF	10%	50V (C&SA,SP)	1-162-286-21	CERAMIC	220PF	10%	50V	
41	L1	1-406-998-11	COIL, AIR-CORE (US,CND,C&SA)				1-406-998-11	COIL, AIR-CORE (US,CND,C&SA,E)				
	L1	1-406-999-11	COIL, AIR-CORE (AEP,IT,CIS,UK,SP,EA,E)				1-406-999-11	COIL, AIR-CORE (AEP,IT,CIS,UK,SP,EA,AR)				
	R124	1-249-413-11	CARBON	470	5%	1/4W (EA,SP)	1-249-413-11	CARBON	470	5%	1/4W	(EA,SP,E,C&SA,AR)
	R124	1-249-417-11	CARBON	1K	5%	1/4W (C&SA,E)		————————				
	R124	1-249-421-11	CARBON	2.2K	5%	1/4W (EXCEPT C&SA,E,EA,SP)	1-249-421-11	CARBON	2.2K	5%	1/4W	(EXCEPT EA,SP,E,C&SA,AR)
42	R155	1-249-431-11	CARBON	15K	5%	1/4W	1-249-429-11	CARBON	10K	5%	1/4W	
	R224	1-249-413-11	CARBON	470	5%	1/4W (EA,SP)	1-249-413-11	CARBON	470	5%	1/4W	(EA,SP,E,C&SA,AR)
	R224	1-249-417-11	CARBON	1K	5%	1/4W (C&SA,E)		————————				
	R224	1-249-421-11	CARBON	2.2K	5%	1/4W (EXCEPT C&SA,E,EA,SP)	1-249-421-11	CARBON	2.2K	5%	1/4W	(EXCEPT EA,SP,E,C&SA,AR)
	R255	1-249-431-11	CARBON	15K	5%	1/4W	1-249-429-11	CARBON	10K	5%	1/4W	
	⚠R340	1-249-381-11	CARBON	1	5%	1/4W F (US)		————————				
43	*	1-668-288-21	MONO/ST SW BOARD (AEP,EE,IT,CIS,UK) **********				*1-668-288-21	MONO/ST SW BOARD **********				(AEP,EE,IT,CIS,UK,SP,AR)
	* CNP1	1-691-573-11	PIN,CONNECTOR (PC BOARD) 2P			(AEP,EE,IT,CIS,UK)	*1-691-573-11	PIN,CONNECTOR (PC BOARD) 2P				(AEP,EE,IT,CIS,UK,SP,AR)
	S302	1-771-060-11	SWITCH,SLIDE (FM MODE) (AEP,EE,IT,CIS,UK)				1-771-060-11	SWITCH,SLIDE (FM MODE) (AEP,EE,IT,CIS,UK,				SP,AR)

● **ACCESSORIES & PACKING MATERIALS**

Page	Before Change				After Change		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
43	⚠	1-557-287-11	CORD, POWER (C&SA)		1-559-047-31	CORD, POWER (C&SA)	

● **HARDWARE LIST**

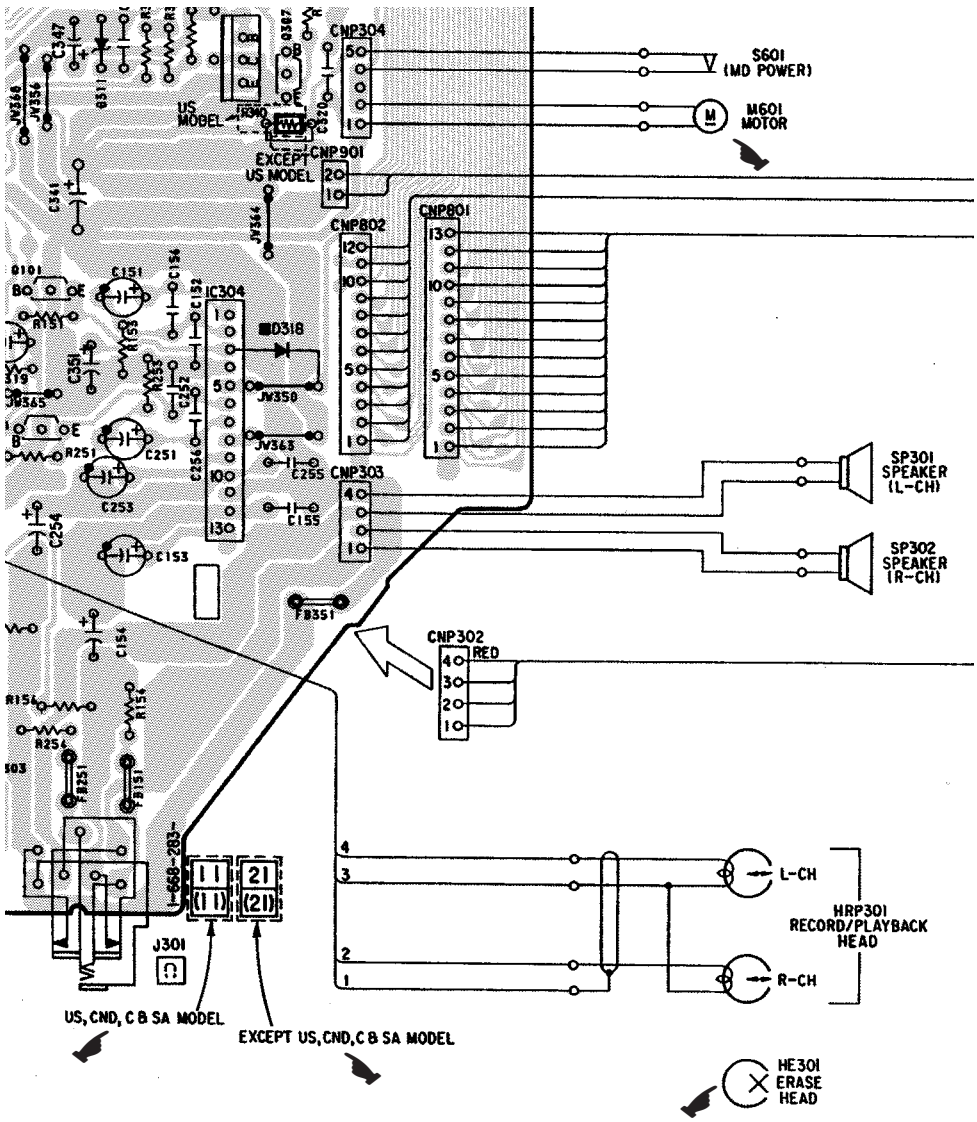
Page	Before Change				After Change		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
44	#4	7-621-773-95	SCREW +B 2.6X6		7-621-775-20	SCREW +B 2.6X5	

● **CORRECTION**

PRINTED WIRING BOARDS (Service Manual See page 18, 19)

☛ **: Indicates corrected portion**

(Location : 8 to 12, D to H)



EXPLODED VIEWS (Service Manual See page 34, 43)

☛ **: Indicates corrected portion**

Page	INCORRECT				CORRECT		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
34, 43	⚠ T901	1-426-632-11	TRANSFORMER, POWER (AEP,EE,IT,CIS,UK,SP)		1-431-231-11	TRANSFORMER, POWER (AEP,EE,IT,CIS,UK,SP,AR)	
43	⚠	1-569-008-11	ADAPTOR, CONVERSION (2P) (E,EA)		1-475-664-11	ADAPTOR, CONVERSION (2P) (E,EA)	
	⚠	1-590-147-11	CORD, POWER (US,CND)		1-696-818-11	CORD, POWER (US,CND)	

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